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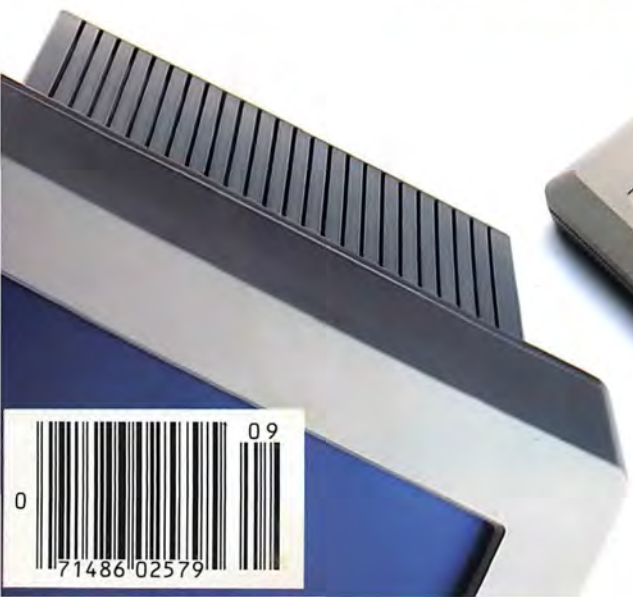
MacUser

THE MACINTOSH™ RESOURCE

The Complete MacUser Systems Guide

Special Supplement Inside



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HIGH-POWERED FEATURES THAT MAKE REFLEX PLUS EASY TO USE

- ☑ Any number of entry forms for the same database
- ☑ Entry for more than one database in a single entry form
- ☑ Your entry form can display one record at a time, or all records at once in a table-style view
- ☑ Calculated fields in entry forms
- ☑ An entirely new manual
- ☑ Display-only fields
- ☑ Default fields that are editable
- ☑ New functions like GROUPBY, which lets you easily show records grouped by values in common
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- ☑ A selection of useful templates, including one to generate mailing labels on your ImageWriter™ or LaserWriter™
- ☑ Choice of record sizes—1000, 2000 or 4000 characters
- ☑ Many Command-key shortcuts
- ☑ "What you see is what you get" design for entry forms and reports
- ☑ Text, floating-point, number, integer, sequence number, date, time and logical data types
- ☑ Display formatting that includes dollar, scientific and percent for numbers
- ☑ Text that can be fixed or variable in height
- ☑ Automatic sorting by key fields
- ☑ Sorting on as many fields as you want, in any way you want
- ☑ Paste Choices, which allows you to create formulas with links, or paste files easily
- ☑ Disk-based, so the limit to your database size is your disk
- ☑ Compatible with all Macintosh computers with at least 512K of RAM

Turning disorganized data into

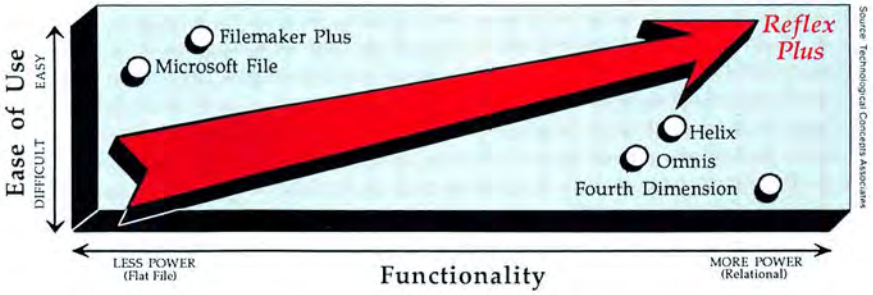
DATABASE SPECIFICATIONS

- ☑ Maximum single field length: 4072 bytes
- ☑ Maximum fields per record: 254
- ☑ Maximum record length: 4080 bytes
- ☑ Maximum records per file: limited only by disk capacity
- ☑ Maximum number of linked database files: 200
- ☑ Maximum number of open windows: 15
- ☑ Maximum number of files that can be used by a report: no limit

THE INFORMATION TREADMILL

Dealing with data is an inescapable reality of modern living—at home and on the job. Especially on the job. Most of it is pertinent. Much of it is valuable. And almost all of it would make our lives more productive—if we could just figure out how to make it work for us without a staff of experts inputting, outputting and making all the right connections.

DATABASE MANAGERS



Prior to Reflex Plus, there were flat-file database managers which were easy to use but limited in power. There were relational programs which were powerful, but difficult to learn and use. Now there is Reflex Plus. It spans all areas of functionality. It can be employed by a single user. It's easy to learn and simple to use.

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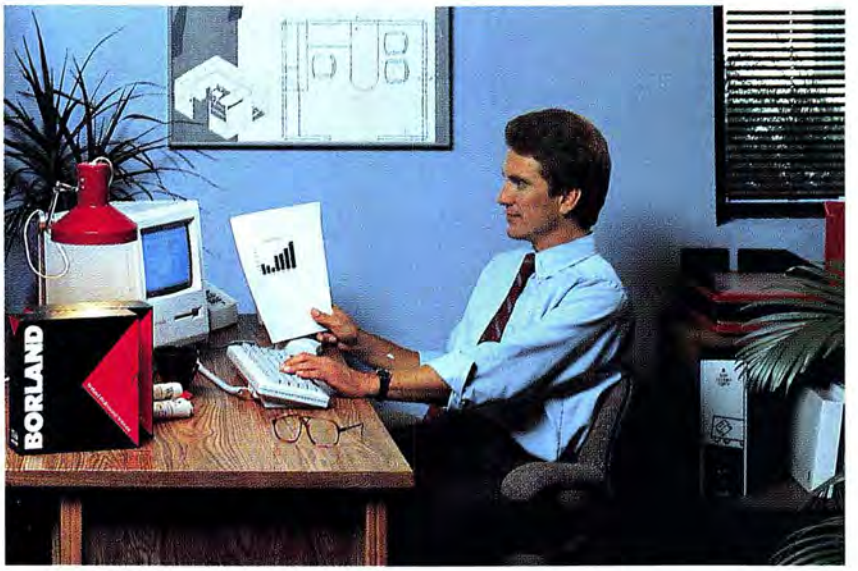

useful information: Reflex Plus

Dā-ta-bāse:
"a collection of data organized especially for rapid search and retrieval."

Some people are intimidated by the mere mention of the word "database." Don't fall into the trap. In today's business world, power is measured by the ability to retrieve, manipulate and evaluate information. A database manager gives you that power.

THE FLAT FILE MODEL

The most elementary form of database manager is the flat file database manager. It allows you to manage lists—like inventories, basic mailing lists, payment records, prospect lists and so on, but its power is limited.

THE RELATIONAL MODEL

A relational database manager such as *Reflex Plus* can manage flat file databases. But its real power comes from the "relational" aspect. It allows you to create multiple flat files, then link and cross-reference records within these files. Oftentimes, the "relationship" established through linking is more important to a user than the original files. Up to now, the most popular relational databases have proven to be cumbersome, hard to learn and difficult to use.

HAVE IT YOUR WAY

Reflex Plus gives you amazing flexibility in creating databases, accessing data and producing reports. You can organize and sort your data any way you want—on as many fields as you want. You can display it any way you want. You can add graphics, change fonts, add calculated fields—all according to your own design.

It crunches numbers like a spreadsheet—with 49 arithmetic, text and statistical functions built in. Which means that it's an especially effective productivity tool on your Macintosh.

Reflex Plus gives you the opportunity to make sense out of all that data. *Reflex Plus* turns disorganized data into useful information, resulting in perceptive decisions.

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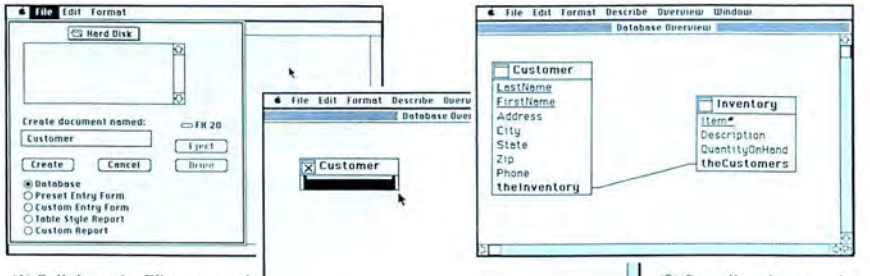

(1) Pull down the File menu and select "New Database File . . ." Enter the name you have chosen. Click on "create."

(2) Voila! Your database is on the screen and waiting for you to enter fields.

(3) Draw lines between the databases to establish the proper relationship between them. And that's it! You're now ready to enter your data.

and Technical Superiority . . .

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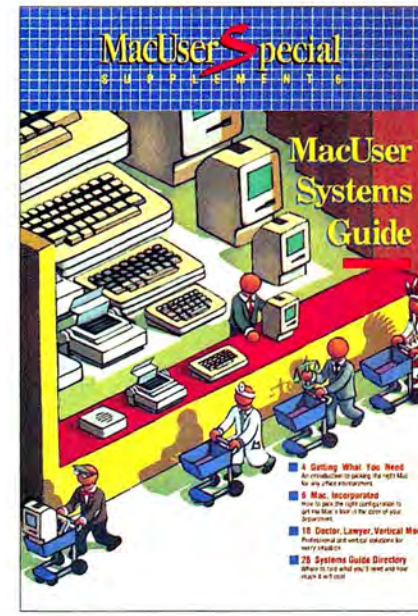

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OverVUE. Best Database of the Year.

Choosing a database manager is no easy task. It's by far the most confusing and fiercely competitive field in Mac software. But now your buying decision is crystal clear, because the editors of MacUser and the readers of MACazine have both selected OverVUE as the Best Database of the Year.

Said MacUser (Jan. 1986), in selecting OverVUE for its **Editors Choice Award:** "OverVUE 2.0 is a deceiving program in that the more you use it, the more you realize what it can do. Power, speed and logical menus make this a dream database."

When MACazine (Jan. 1986) bestowed OverVUE with its **Readers' Choice Award,** they wrote: "We selected OverVUE because of its ease of use, clairvoyance and statistical capabilities. The fact that OverVUE was subsequently selected by our readers as Best Database simply confirms our original assessment: the product is a jewel and the customer support a bonus!"

OverVUE's clean sweep of these two prestigious awards only confirms what everyone else has been saying all along:

Infoworld (July 8, 1985): "...it is Macintosh software done right."

Icon Review (Fall 1985): "OverVUE 2.0 is our favorite database workhorse ... it simply offers the best balance of power and ease-of-use available on the market today."

Nibble Mac (Oct. 1985): "OverVUE is not only easy to set up, it's the easiest for data entry. Its tools for entering repetitive data minimizes typing time."

Online Today (electronic version — Nov. 1985): OverVUE 2.0 is a heavy-duty data management tool... It does all the things a good relational database manager should."

OverVUE's features and power make it the ultimate database choice. Clearly, users and editors alike think OverVUE is something special. We think you will, too.

So visit your nearest software dealer and purchase your very own copy of OverVUE, the Best Database of the Year.

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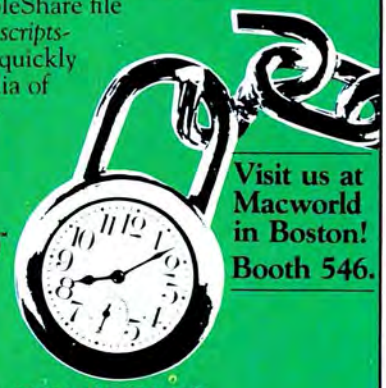

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  - Button
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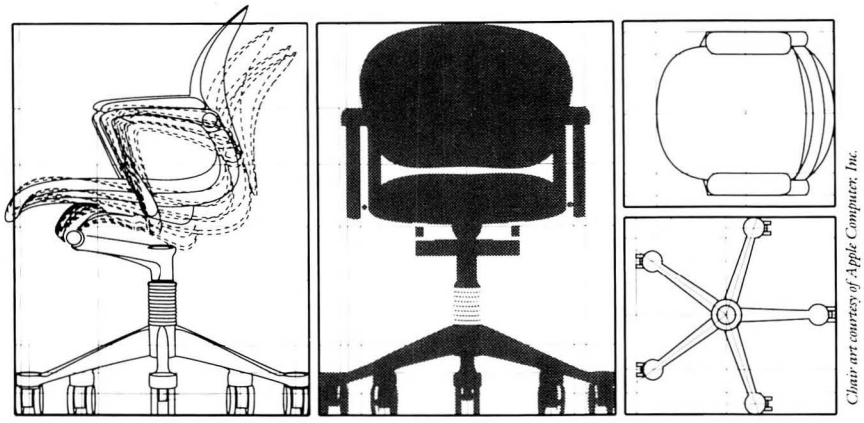
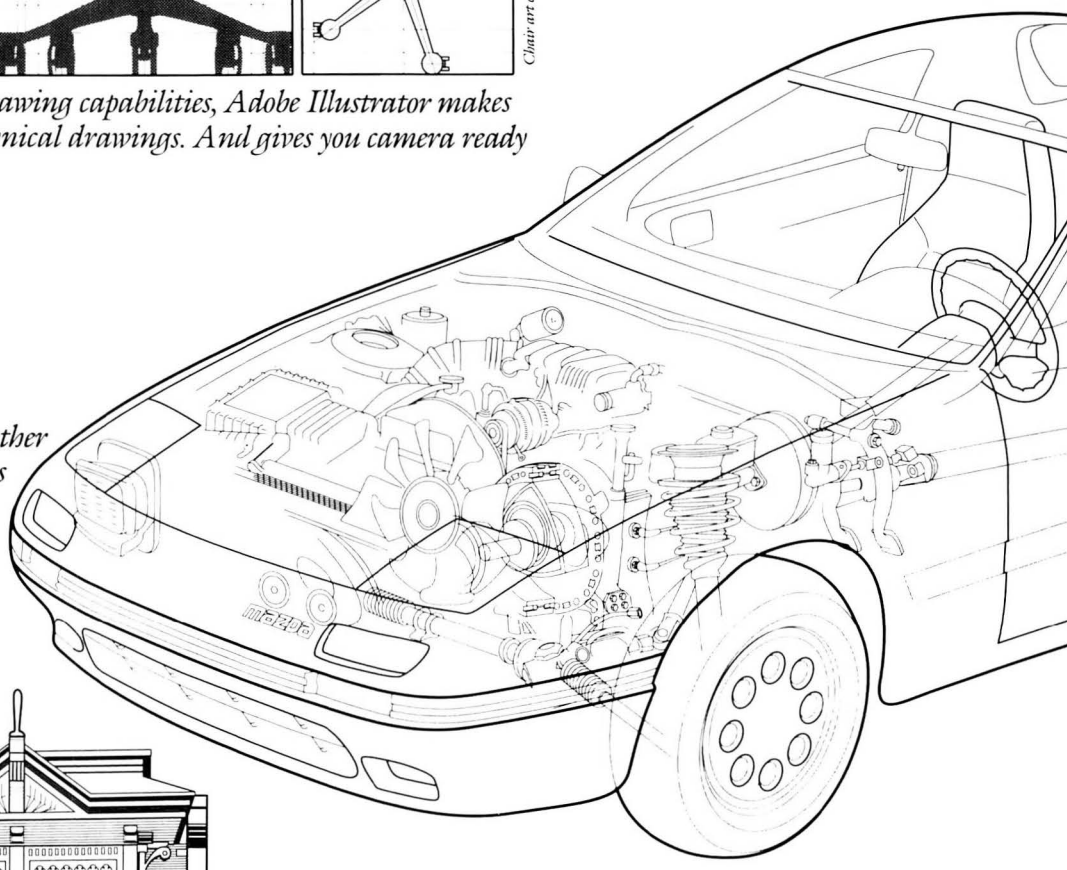


Chair art courtesy of Apple Computer, Inc.

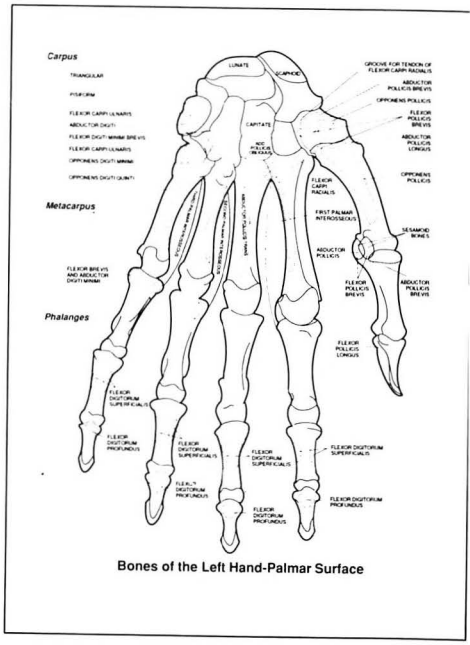
Other draw and paint programs also let you add captions. But none of them can put those captions next to the sharpest, cleanest lines and curves on the map.

With its powerful curve drawing capabilities, Adobe Illustrator makes short work of the most technical drawings. And gives you camera ready output right at your desk.



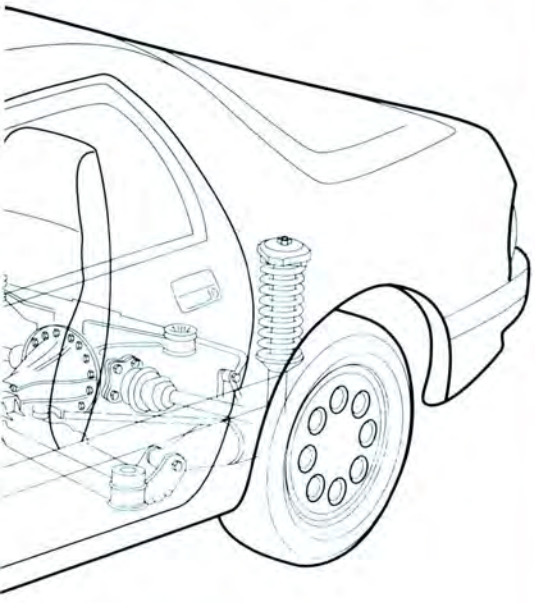
Share your drawing with other users. And if anyone wants to change it—no problem—the Adobe Illustrator can give you another perfect original. Fast.

Start with a blueprint or just a dream and the Adobe Illustrator can help you build out the rest. Straight and true.



Bones of the Left Hand-Palmar Surface

For producing the finest details, all kinds of line weights, even typeset captions with precise control, no other program can touch it.



Unlike other draw and paint programs, the Adobe Illustrator uses lines and curves to form an image, instead of dots. So there's really no limit to the ideas you can hatch. Or cross-hatch.

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Here's how it works.

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Secondly, nothing has to be drawn from scratch. You and your Macintosh Plus,™ SE™ or II,™ can start with the scanned image of a photograph, logotype, blueprint, something from your scrap file, even a rough sketch.

Once in the computer, this scanned image becomes your guide. You trace over it to construct the new image. Then, once you have the image you want, you can manipulate it in ways possible only with a computer—scale it, rotate it, even combine it with other Adobe Illustrator images.

From an artistic point of view, then, the Adobe Illustrator is a powerful, new medium.

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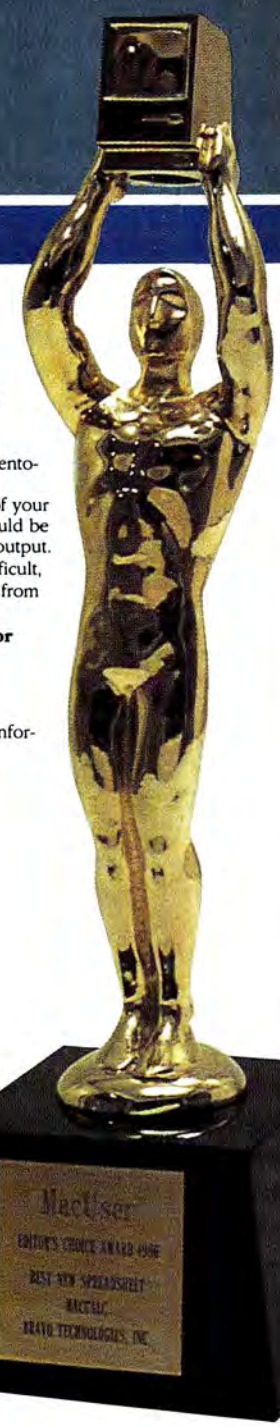

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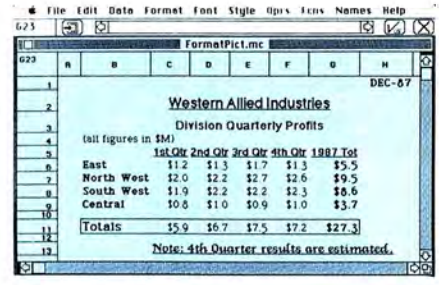

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by Neil L. Shapiro

Money Matters

Being associated with a major magazine has its definite perks (short for "perquisites" meaning "something additional to pay resulting from employment"). The perk I enjoy the most is access to a whole world of software. Just about every software program you can think of comes into the offices. I and other staff members get to familiarize ourselves with everything happening on the Mac. So, when it comes time for me to put my own money down for a program, I have a real good idea of what to buy.

In fact, one of the goals of this magazine, of any computer magazine, is to share this knowledge as widely and as objectively as possible. When it comes time for you to part with your own funds, you'll have some factual basis on which to decide.

THE COST OF MAC'ING

The other day I sat down with some mail-order ads and some price lists from local computer stores. I tried to place myself in the position of an everyday Macintosh owner setting up a modest- to good-sized business. One thing soon became obvious to me, the cost of software would not be trivial. In fact, it could easily far outstrip the cost of the computer itself.

And, while *MacUser* and other publications can and do go a long way toward explaining the differences in software, they simply can't substitute for a few weeks worth of hands-on experience using the software in your own business. So while I could skim down the list and know I would need such-and-such, many people would probably make at least a couple mistakes and wind up buying two to three different products in one or more categories before being absolutely satisfied. This would raise the bottom line software-startup costs even higher.

And, while the mail-order lists certainly were more tempting than the in-store retail pricing lists, it was obvious where the support would be better. If a good, local dealer could be found, support there for such things as complex data bases could far outweigh the difference in mail versus in-person costs. Raise the bottom line again.

Then I noticed one other thing. It seemed from the price lists that software for the Macintosh comes in two flavors: expensive and cheap. There are a lot of Ferarris and Hyundais; there are few Buicks.

DOLLARS FOR YOUR THOUGHTS

My first reaction was to feel that perhaps software for the Macintosh is over-priced. My first thought was that many complex programs could be offered in two versions. There would be a full-featured and full-priced version and a cheaper version with fewer features. You could buy the Buick and trade up to the Ferarri later.

But I realized, after talking to various developers, that this idea was too simplistic to be generally adopted. As one developer put it, how would you know what features to cut from the cheaper version? If the programmers choose wrong, the impact of such weakening could reflect poorly (and unfairly) on the more powerful product. Programming is always a crap shoot. You guess what people want and program it in. If you've been lucky enough to make your point, how fast do you want to pick up the dice again?

Then there's the issue of the research time, the labor that goes into building a Ferarri-level product. A man may have literally invested his life—money and time—in developing a product that he hopes will allow him and his people to base their future lives around. So if the return on such investment is not there, what was the point to begin with?

One bright glimmer in all of this is that more and more companies are developing demoware. The typical demoware product shows almost all of a program's capabilities and lets the user actually work with and understand the program. Obviously, the demo version will have important features disabled. Often this means a very small limit to the number of records, no printout and so on.

As more and more demoware becomes available it's getting a little easier for the businessman to at least eliminate the mistakes from the bottom line start-up costs. Demoware has already saved thousands of dollars from being misspent.

Still, from the viewpoint of the new user, that bottom line software cost can still seem to be a very large hurdle.

A GROWTH MARKETPLACE

In the midst of this thinking, there arrived on my desk the latest issue of "Outside Apple," which is the newsletter Apple sends to developers. In an article that gave a lot of excellent advice to developers who are writing and marketing business software there was one line that read: "Don't be afraid to price your software at what it's worth. (It doesn't have to be low-priced because it's for the Macintosh.)"

OK. But I think that statement implies a misleading corollary that if software is for the Macintosh it *should* be expensive. I don't want to get into the situation the IBM PC is in now where if you want one program to sneeze it will cost $600 and if you want another program to say *gesundheit* that will be $895.

I think the above statement would have been absolutely perfect without the parenthetical clause. To wit: "Don't be afraid to price your software at what it's worth."

I think that there are a number of programs existing now whose sales would more than double if their prices were cut by 30 percent. And I think there are programs coming out that are priced at a level where they will not make nearly as much money as they should—even though they will be successful—because they won't reach as broad an audience as they should.

My impression of the Macintosh marketplace is that it is a growth marketplace that is adding more and more people every day. And fewer and fewer of those people are accustomed to paying high prices for software.

Well, it's easy for me to say that developers should think about pricing

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their software, their latest babies, lower in price instead of higher. If I'm wrong, I'm not going to offer to send them the money to make up for having taken my advice. I'm not the one that will suffer.

But I think that the Macintosh marketplace is more like a community than the software marketplace for Big Blue. In our community it is often the case that word of mouth and general reputation can lead to great rewards. I feel very strongly that the developers who offer the consumers the best value for their dollars will receive the lion's share of the marketplace.

It seems Macintosh software comes in two flavors: expensive and cheap. There are a lot of Ferarris and Hyundais; there are few Buicks.

I do not think that the Macintosh marketplace is driven by status numbers as is the IBM marketplace. I think that Macintosh owners and purchasers of Mac software are wise enough to look beyond status pricing to perceive true value.

Speaking to the developers reading this article: Try to price your software so it will be as affordable as possible to the widest audience as possible.

Speaking to the consumers reading: When you see that a company is trying to give you real value, support that company in every way that you can. Tell people about it. Let the community know.

We're all in this together.

TANKS A LOT

Now for something completely different: I can't resist telling you all about a new game I have been playing in beta form. It's called *Ogre* from Origin Systems and should be available by the time you read this. We'll have a full review in one of the next issues. Basically you are out to destroy a terribly intelligent, cybernetic tank on a futuristic battlefield. The use of the Mac interface is fantastic. If you're into simulation gaming I can't recommend this one highly enough!

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The FPD is not a replacement for the screen in your Macintosh. It's an enhancement. Because the FPD actually works in combination with the internal screen in your Macintosh.

With a Radius FPD you can see a whole 8½″ x 11″ page at one time. Without scrolling through or reducing the size of your document. Which means you work a lot faster. And print a lot less.

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The FPD's 640-by-864 pixel screen provides a flicker-free, stable, virtually paper-like page and a rich, high-detail picture.

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The FPD's control panel lets you configure your system for combination display, FPD-only display or Mac-only display. You can even specify on which side of your Macintosh you want the FPD to sit.

If you're working with *PageMaker*® you can use the FPD for page makeup and the Mac screen for your Tools palette window.

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Steven Bobker

We're always happy to hear from our readers, so keep sending your comments to Letters to the Editor, MacUser, *25 West 39th Street, New York, NY 10018. All letters become the property of* MacUser *and we reserve the right to edit any letters that we print.*

ANOTHER WORLD

The May 1987 issue of *Macworld* mistakenly dubbed Kamerman Labs a "failure" that had been squeezed out of the Mac drive market place. The truth of the matter is that in January of this year, Kamerman Labs filed for protection under Chapter 11 of the bankruptcy code. *Macworld*'s ill-informed report is cause for serious concern. Their story is not only a breach of responsible journalism, it is just plain wrong. Kamerman Labs is alive and well.

Professional journalism demands more than mere repeating of what one hears; even a parrot can do that. Rather, it requires calculated and thorough investigation of hearsay in an effort to inform the public of the true state of affairs. *Macworld*'s failure to place a single phone call in for verification of such a serious matter is a slap in the face of responsible journalism. If the editors were too busy to phone, they should at least have looked at their own publication and noticed our full-page ad just 6 pages after their article—hardly the type of advertising one would expect from a company that has allegedly been "squeezed out of the Mac marketplace."

Their substandard reporting techniques are compounded by a clear lack of understanding of fundamental bankruptcy procedures. Chapter 11 is not a liquidation proceeding; just ask Texaco! Rather it differs from straight bankruptcy in that the debtor strives for rehabilitation and reorganization. The creditor looks not to the collection and distribution of the debtor's property, but instead to the future earnings of the debtor. Kamerman Labs grew too big too fast as a manufacturer of IBM compatibles. Chapter 11 provided the appropriate remedy for an otherwise sound and growing business and gave Kamerman the opportunity to introduce its new Mac products while benefiting from the continuity of an established company. In fact, Kamerman Labs showed a profit for 4 consecutive months following the filing.

I don't know if our company's reputation has been irreparably damaged; I only hope that I have put a damper on *Macworld*'s overzealousness and set the record straight for the public.

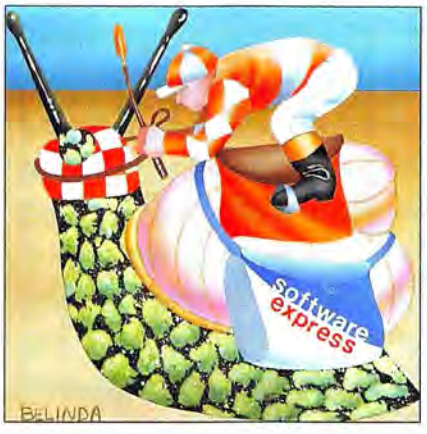
JOEL KAMERMAN, PRES.
KAMERMAN LABS

WHICH WAY IS UP?

Call me a nitpicker, but I feel a correction must be made to your product review of *Japanese Clip Art* (April 1987). You said that the Japanese fonts were less useful because Japanese is printed right to left, instead of left to right, so they need to be used with *MacPaint* instead of a word processor. Not true.

Because of the introduction of the word processor ("waapuro" in Japanese), it is now acceptable and perfectly correct to write left to right and down a page like English.

JIM BRIGGS
NASHVILLE, TN



BELINDA MORRISSEY

GETTING SATISFACTION

A reader complained of delays in receiving a software update that he had paid for. He thought that "it's unfair not to inform the public about such delays." In fact, it may also be illegal. (This refers only to mail order delays in general. I do not have any information about the company mentioned by your reader.)

If you have paid in advance for a mail order purchase, you are entitled to receive your order by the promised date. If the company didn't promise a specific date, it must ship your order within 30 days of receiving it. The company must notify you of any delivery delay, and allow you to cancel the order and obtain a refund at no charge. If you don't respond to the first notice, the company may assume that you agree to the delay. However, the company must refund your money unless you expressly agree to any further delays. The FTC enforces the Mail Order Rule by seeking civil penalties from the violators.

Note that the Mail Order Rule does not generally apply to items ordered by telephone unless you send payment by mail. So a credit card purchase made over an 800 number is not covered by the Rule. Also, the Rule does not apply to credit purchases where your account is not charged until the merchandise is shipped.

Send complaints about mail order purchases, whether or not involving violations of the Mail Order Rule, to the Federal Trade Commission, Washington, DC 20580; or to any of the FTC's regional offices located in Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Los Angeles, New York, San Francisco and Seattle.

RANDALL H. BROOK, SR. TRIAL ATTY.
FEDERAL TRADE COMMISSION

WE HAVE SEEN THE FUTURE...

In response to John Dvorak's criticism of the lack of product imagination with Apple Computer's present upper management, "Is There A Future For Apple Computer?" (March 1987), may I suggest that he was being a bit harsh by picking on just Apple.

In view of Japanese general economic competitiveness, a better title for his piece might have been "Is There A Future For The American Microcomputer Industry?"

ELLIOT BERNSHAW
SALT LAKE CITY, UT

ANTI-LETTERS

In almost every issue you publish letters in response to John Dvorak. I propose that you carry all letters about your anti-editor in an anti-letter section. I suggest six types of letters to send in:

1. DISAGREE—*He never saw the problem.* He complained that Apple used an odd shaped thingie to represent the command key (Sept. 86). The real problem is that font developers don't create the symbol for typesetting.

2. DISAGREE—*He's blind to reality.* In his first anti-editorial, Dvorak said executives won't pick up on the Mac because it doesn't look like a computer, i.e., it doesn't look IBM-ish. Wrongo, buddy. The Mac just reeks of high-tech gadgetry. It's sexy.

3. AGREE—Use this one sparingly. You don't want to encourage him.

4. ARGUE FOR THE HELL OF IT. Let's face it. There are times when his column reads as if he had a deadline and didn't know what to write, so he wrote something nasty to get a response. Fight back. Write something nasty back. Don't forget to accuse him of everything from

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DiskExpress™ keeps your hard disk running at top speed.

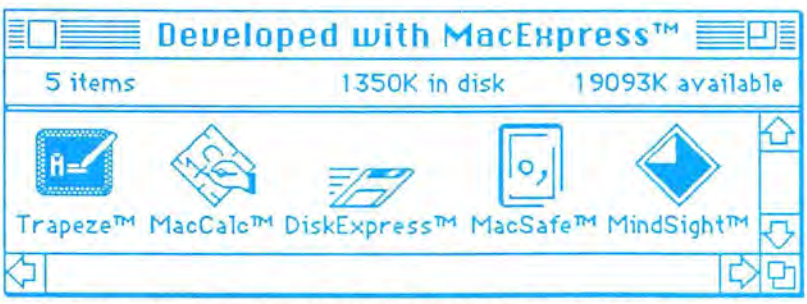
MacUser Magazine: "Just like humans, the older your disks get, the more they slow down. Computer gurus have dubbed this electronic hardening of the arteries 'disk fragmentation'. Fortunately, there's a program that can restore your disks to their youthful vigor. It's called DiskExpress. [After running DiskExpress] the resulting speed improvement was impressive."

MacWorld Magazine: "DiskExpress from ALSoft can get your files back together and make you feel good about disk I/O again."

MACazine: "DiskExpress is easy to use. No special or technical knowledge is required. I run DiskExpress ... to restore my hard disk to optimum performance. [It] is a well-designed product which should be packaged with every hard disk sold. I rate it this month's BEST BUY!"

Recommended by: SuperMac, Jasmine, AST, Peripheral Land, Peak Systems, Infosphere, Quark, Blyth Software, and many others.

MacExpress™ slashed their program development time. It can do the same for you.



MacExpress supports the 512, 512E, Plus, XL, SE and II. Versions available for MPW C, MPW Pascal, LightspeedC, Lightspeed Pascal, and TML Pascal.

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grave robbing to fraternizing with non-Mac computers.

5. SOAPBOX. Use the letters to the anti-editor section as your own soapbox and completely ignore everything Dvorak has said.

6. STEAL YOUR IDEA FOR A LETTER FROM SOMETHING DVORAK WROTE ABOUT. See Feb. 87 "list of 6" column.

JOHN M. HUBER
MILWAUKEE, WI

SEE PAGE...

Because of the large number of hard disk drives now on the market, it would be helpful if you could compare Mac drives *a la Consumer Reports.*

THURMAN T. GROSSNICKLE
HERSHEY, PA

Check out "The Fast Forties," a review of 40-meg hard disks found elsewhere in this issue. It should at least be a start.—BT

PROGRAMMED RESPONSE

MacUser is great, but it lacks one thing—a section for programmers. The Mac, because of its complex user interface, is one of the most difficult computers to program. Yet no major magazine that I've seen carries a programming section for MacProgrammers. Come on people, not all Mac users belong to the "rest of us" group. Some of us are just good old fashioned hackers.

DOUGLAS LEE
CHARLESTON, SC

Come on old-fashioned hacker. Surely you know about MacTutor? *Here's the scoop: Subscriptions are $30 a year and their address is PO Box 846, Placentia, CA 92670. It's for you. We're for you and everyone else.*—SB

HELP WANTED

I am the author of a screwball comedy titled, "Puzzle Girl" and am looking for someone to collaborate with in creating a mystery puzzle computer game in time for Christmas with a new version to be issued every Christmas.

MARK FINLEY
CHESTNUT HILL, MA

MANUAL LABOR

The not-so-rave reviews of *Word* 3.0 didn't surprise me a bit. I've thought for some time that Microsoft has come up with a brilliant copy-protection scheme: Make the program so difficult to use that the manual is needed for any operation. I remember searching all through the *Word* 1.0 menus for Insert

Page Break and finding nothing. Finally accepting defeat, I checked the manual and found that Shift-Enter was the *Word* word for what I wanted.
JIM HAMILTON
AUSTIN, TX

BETTING ON OPTIONS

So now we have two new Macs, and guess what? The spiffy keyboards still don't have right-hand option keys, which are desperately needed by those who do word processing in foreign languages. Is Apple really indifferent to these needs? At least the old keyboards for the original Mac will work on the Plus, but they won't work with the new machines at all. Unless someone comes up with a way to program the keyboards (Plus, II and SE) to use one of the cursor keys as a right-hand option key (since the cursor keys apparently don't work in *MacWrite*), I for one have no intention of getting one of the newer machines. And the new keyboard from Tangent Technologies also lacks this essential feature. Why people out there listen?
EDWARD COWAN
ARLINGTON, TX

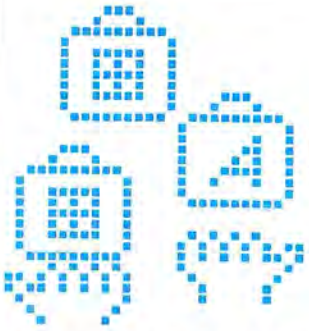
PROGRAM PERSONALITY

I want to compliment you on Mike Wesley's article comparing five word processors in the March 1987 issue. Rather than provide another dull catalog of features, Wesley talked about what the programs are actually *like*, how it feels to use them and what their real strengths and weaknesses are. This is the kind of information I—like most people—am always looking for, but don't often find. By describing the *personalities* of the five programs, Wesley produced the most useful computer article I've read in a long time.
ARTHUR NAIMAN
KENSINGTON, CA

PAGING BULL

Like so many others, I've been trying to run a design and page-layout business with *PageMaker*. For almost a year it's been driving me crazy. System crashes, lock ups, whimsical document screwups and a snail's pace—*PageMaker*'s got it all, in spades. The program, simply put, is junk.

On top of that, there's the arrogance that emanates from Aldus. These folks apparently think they're geniuses who needn't cater to the proles' needs. A case in point: They finally solved *PageMaker*'s cute little trick of showing one thing on the screen, and printing something en-



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- Comes with a FREE utility to rename and renumber DAs.
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Puts Mega*bites* of valuable nutrition information at you fingertips. Play nutritional "what if" by food, meal, menu, and recipe. You can:
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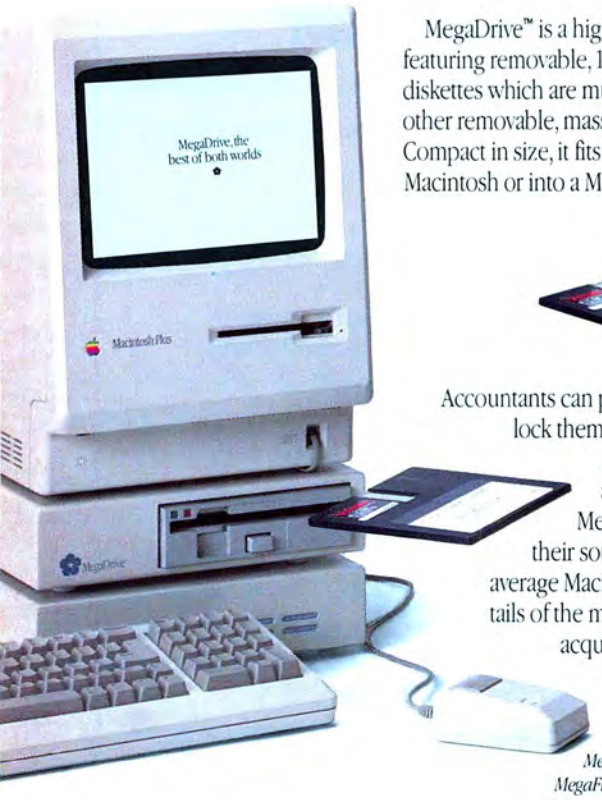

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– InfoWorld
June 29, 1987

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– MacWorld
July 1987

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Graphics. That's what you bought the Macintosh for. And that's why there's PictureBase—the graphics "database" for desktop publishers.

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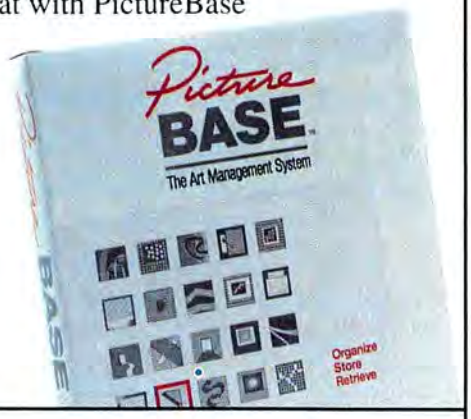

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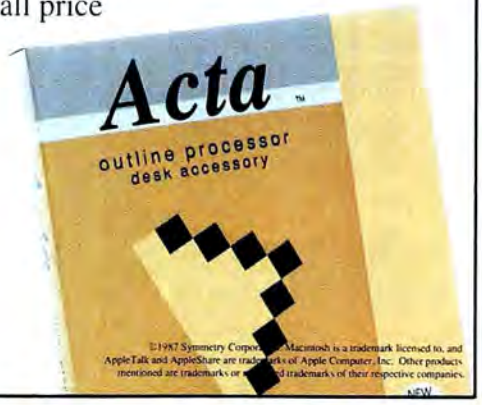

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tirely different...and they don't even notify the suckers who shelled out $495 for a junk program (much less send it to us). But they will give you a desk accessory that almost solves the problem if you buy their design templates.

I'll say this, too: Compared to *PageMaker, Ready, Set, Go! 3* is an absolute joy to work with. It's smart, it's fast, it's ingenious. It runs rings around *PageMaker*—and puts out better looking work, too.

The moral: A cozy relationship with Apple and with the media, like Aldus apparently has, can do wonders for you. Even if you're putting out unconscionable junk.

LOUIS PEDDICORD
TIMONIUM, MD

SEEING SOUND

Some friends of mine, Steve and Pam, are deaf. Having never heard their Mac beep, they didn't miss the convenience of that audible reminder that the Mac wants your attention. One day the subject came up and we decided to rectify the situation. We attached a 5 volt LED (light emitting diode) to their Mac's sound output using a plug from Radio Shack. It flashes for them and is almost as good as a beep. The wire is long enough to put the LED on the keyboard when Steve is hunting and pecking, or up on the screen when Pam is touch typing.

Steve says he even distinguishes different beeps in certain applications—a dim or short light or a light that gradually gets brighter, etc. This may not be the first alternative to the beeper, but it was easy and inexpensive.

Will it hurt your Mac? I don't know, but I used it a few days, and Steve has used it for about 6 months or so without any problems.

ROBERT MCLAUGHLIN
CINCINNATI, OH

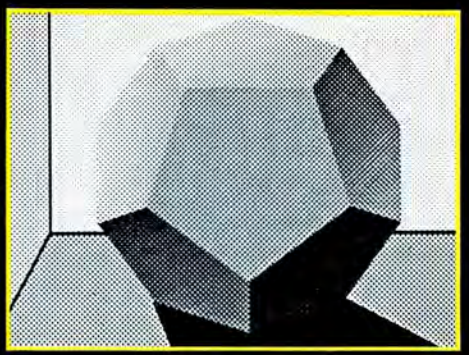
MIFFED BUFFER

In response to your product review of the Universal Printer Buffer (March 1987 "Buffer Zone"), we would like to draw your readers' attention to the following:

Your reviewer said he had a very hard time making our unit work with the Mac. He failed to mention that we offered him the proper cables. He said he would rather use his own. Of course it was confusing, but it was his choice.

The UPB was faulted for not having a software driver. The fact that the Macintosh's serial port is terribly slow and needs a driver to reprogram the port

ACHIEVE THE ULTIMATE.



You've probably felt the frustration. All of that graphic power just waiting to be tapped, without software to unleash the potential. Frustrate no longer – Cricket Draw is here.

cricket DRAW

Runs in color on the Mac II!

Cricket Draw is an object-oriented drawing program that brings a whole new dimension to the WYSIWYG environment.

WYSIWYG is great but the end result is limited by the Mac's display resolution (approximately 5,000 dots per square inch). Cricket Draw, through the magic of PostScript,™ lets you take full advantage of the LaserWriter's superior resolution of 90,000 dots per square inch. The final product is sensational artwork that will bring a new level of professionalism to your work. With Cricket Draw **WYGIBTWYS** (What You Get Is Better Than What You See).

Unrestricted Creativity. Cricket Draw liberates your creativity by providing an unprecedented range of tools, like tilting and free rotation of any object. You can shade with a gray scale (0-100%), create shadows, fountains (graded tints), starbursts, grates, and smoothed curves. And that's just the beginning.

Precisely set type then add any of a number of special effects. Place type on any arbitrary path, rotate, tilt, shade, shadow – the possibilities are limitless.

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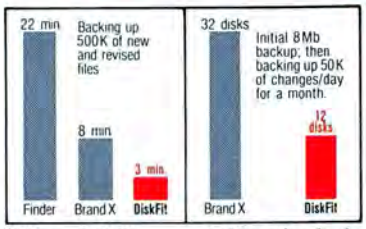
Because your current backup "solution" is so much trouble, you probably can't stand putting yourself through the torture.

Now, there's an easy way to end your backup blues — DiskFit™.



Without DiskFit, backing up a day's work can be so tedious you might be inclined to skip it altogether – and leave your data unprotected.

Unlike other back-up programs, DiskFit's backup disks remain a manageable size – even after months of incremental backups.

DiskFit is automatic. DiskFit manages the entire backup process so you don't have to. It scans your hard disk for files that need to be backed up. Then it deletes obsolete files from the backup disks and fits your new files – in standard Macintosh format – into the reclaimed space. Automatically. And DiskFit only asks for the disks it needs. DiskFit even formats your blank floppies, verifies the integrity of the backup, and generates a backup report.

DiskFit is fast. A typical day's work is backed up to floppies in just about three minutes. Backing up from one hard disk to another is even faster.

DiskFit requires fewer backup disks. Other programs are inefficient; they don't reclaim the space left by old files, so they require an ever-increasing number of disks each time you back up.

Not so with DiskFit.

It's smart, so your backup set grows only as much as your files do. And since no directory disk is required, you have nothing to lose. Even if you lose one of your backup disks, DiskFit will recreate it.

And for AppleShare™ – Network DiskFit.

Backing up becomes even more crucial when using shared volumes. If losing one person's data is bad, imagine losing an entire workgroup's. Network DiskFit is the only backup utility that restores AppleShare folder ownership and access privilege information automatically, so the network administrator doesn't have to.

Network DiskFit resides on the server volume; each user on the network can also back up their local hard disk as well as their files on the server.

Money back guarantee. We're so confident that DiskFit and Network DiskFit outperform your present backup system that if you are not completely satisfied, return your purchase to us within 30 days for a full refund.

Get DiskFit and stop singing the backup blues.

- **DiskFit: $74.95**
- **Network DiskFit: $395.00**

SUPERMAC SOFTWARE

295 N. Bernardo Avenue
Mountain View, CA 94043
(415) 964-9694

System requirements: Macintosh 512, Plus, SE, or Macintosh II with one or more HFS-format hard disks.

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baud rates to speed up its output is obviously not our problem. [*Editor's Note: Oh? Then why market a device for it in the first place?* — SB] JFD does have driver software available at this time.

We were also panned for not having enough memory. We have the UPB with 64K or 256K, which is what your reviewer ordered. We also have the UPB Plus available with 512K and 1M with a control panel and status display. Your reviewer did not order this unit, nor did he ever ask.

Amazingly, our unit was criticized for offering parallel input and output ports. There are a few people with parallel printers (Epson) and computers (IBM comes to mind) who find parallel ports quite useful.

Johnathon Freeman Designs' address is: JFD, Inc., PO Box 880114, San Francisco, CA 94188. The address you listed is for shipping only. Mail will not reach us there. With the poor review we received from *MacUser* we do not expect this to cause a problem, as we doubt anyone will write.

JOHN STEVEN CALDER, PRES.
JOHNATHAN FREEMAN DESIGNS

Because of its length we couldn't print all of Mr. Calder's letter. However each of his main points is presented here.—BT

FIVE TIMES FASTER

In the article "Let's Talk Scrapbooks" (June 1987) your readers were misinformed about our product *SmartScrap*. You mentioned that it takes up to five minutes to build a table of contents and that the user has to reconstruct each time that he/she wants to use it. You only have to build the table of contents once with *SmartScrap*. Once it is built, it can be immediately accessed from a pull-down menu anytime. It may take 5 minutes the first time if it is a scrapbook with a hundred pictures or if it has very large pictures.

LAUREN CAMMANN, MARKETING DIR.
SOLUTIONS, INTERNATIONAL

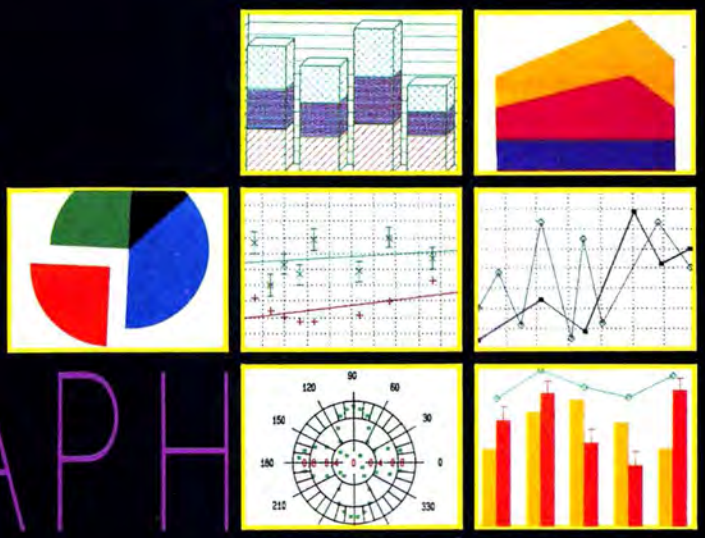
SOFTSTRIP DREAMS

Thank you for supporting the Cauzin Softstrip Reader. I look forward to the "Strip Show" and hope you continue to include this feature each month. I would like to see spreadsheet templates, utilities and an index of *MacUser* for 1986.

GREGORY JANIAN
SOMERVILLE, MA

We'll be continuing our Softstrip series as space allows. As to our Index, look for it in an upcoming issue.—SB

ACHIEVE THE ULTIMATE.



Your data is everything. It represents the culmination of all of your efforts. . .your accomplishments. So when it comes to turning your data into graphic presentations, you can't afford to settle. You need the power to achieve the ultimate. You need Cricket Graph.

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It's elegance defined - powerful, yet easy. No wonder Cricket Graph was voted "Best Business Graphics Package of 1986" by the Editors of MacUser.

Don't allow the limitations of your software to prevent you from achieving the ultimate. With Cricket Graph, your potential is limitless. Only $195 at dealers everywhere.

Requires a 512K Enhanced Macintosh or a Macintosh Plus

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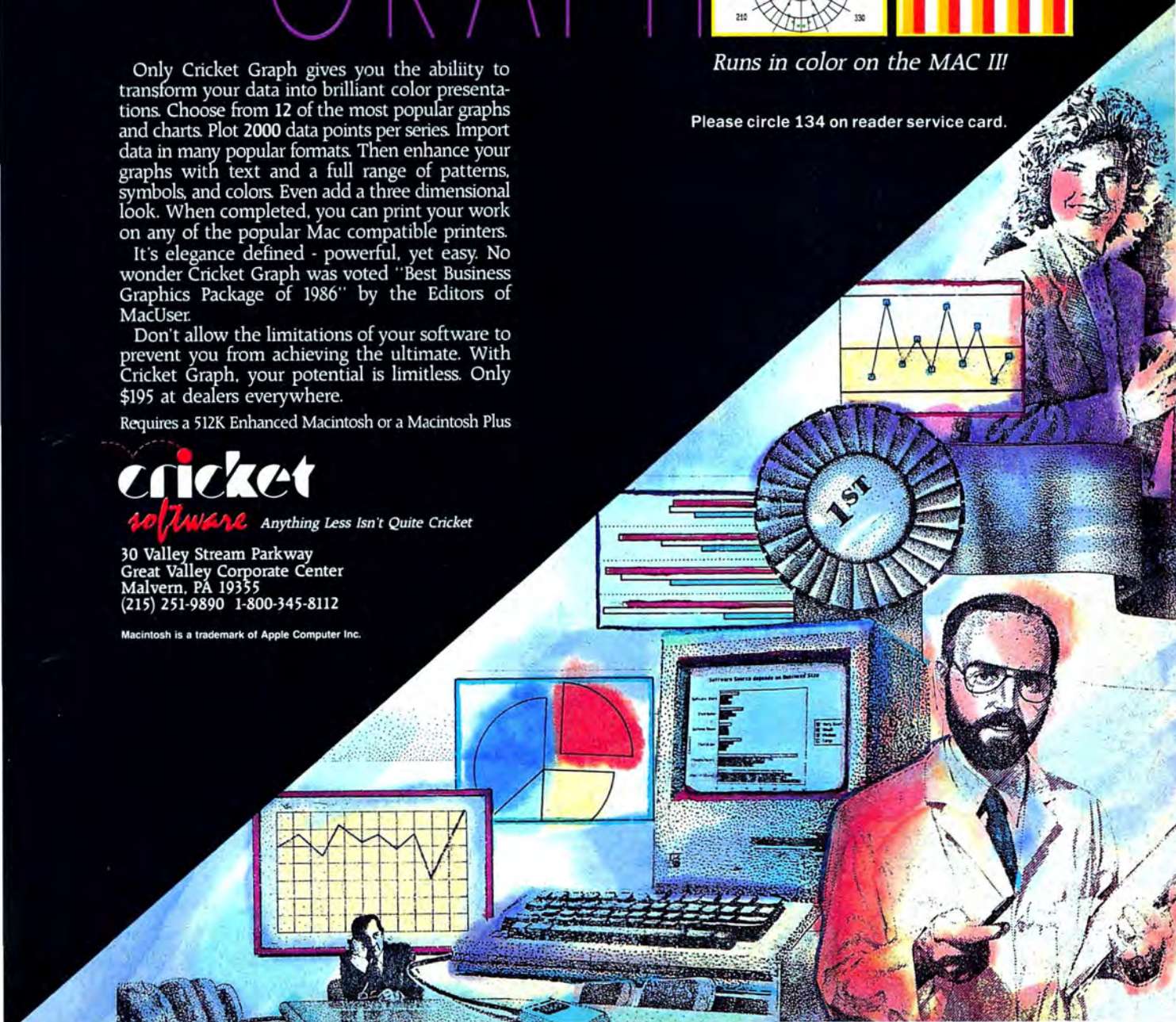

cricket software *Anything Less Isn't Quite Cricket*

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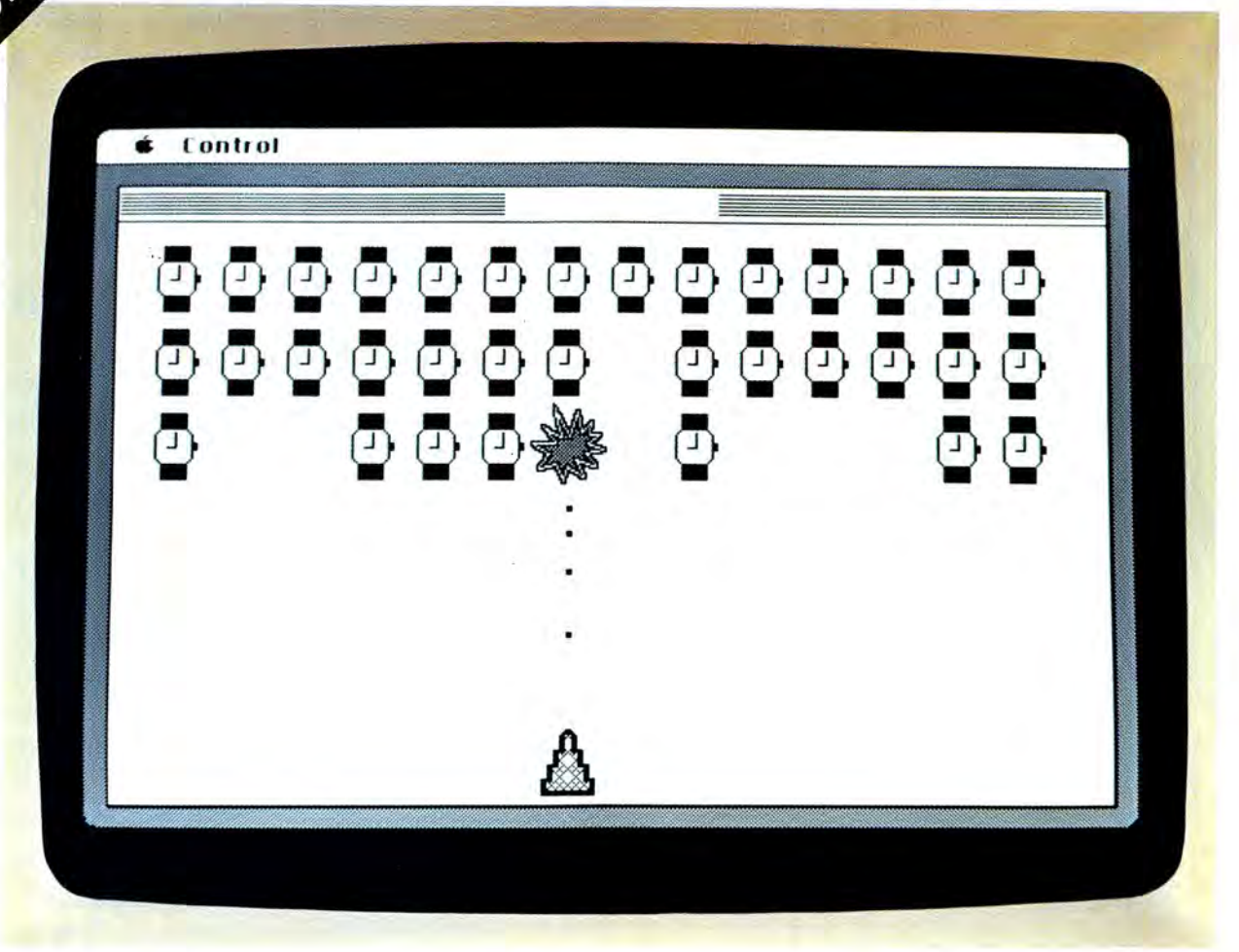

On your Macintosh Plus, it's the one thing that comes between you and a finished job.

You can win, though. With the Rodime 20 Plus™ hard disk.

Data retrieval is eight times faster on the Rodime 20 Plus and its SCSI connection than with the Mac Plus's regular diskette drive. And six times faster than with any hard disk that uses the floppy port.

So you'll be doing spreadsheet recalculations and database sorts in seconds.

And, of course, there's storage. 20 megabytes – that's 25 floppy disks' worth – on the 20 Plus. And over twice as much on the Rodime 45 Plus™ All in a package that fits right under your Mac Plus.

Best of all, it's made by Rodime. The acknowledged leader in hard disk technology and reliability.

There is more. Like software that makes it easy to back up an entire disk, or any documents, onto floppies. And the one-year limited warranty.

But those things will seem like extras after you see the speed.

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EDITED BY LOUISE KOHL

Coming from COMDEX

COMDEX, the computer dealers' exposition, is usually known as a showcase for manufacturers of IBM-related products. This year's spring show, held as always in June in Atlanta was no exception. You had to search the show floor carefully for elusive new Macintosh products. There were only a few and most were from companies well known in the IBM world. The companies showing Mac products included CornerStone Technologies, DCA, QMS, Priam and PerfecTEK.

QMS showcased a number of PostScript devices, the newest being the incredible QMS-PS 800 II, a high-powered LaserWriter Plus-compatible printer with specs that read like a 300-dpi wish list. The printer sports a 68000-based controller running at a blinding 16.67 MHz. There are 3 megabytes of on-board RAM, probably enough for any font downloader's tasks. The printer also comes with a dual bin paper feeder, so that "first page/second page" printing tasks, as long as they are supported by the software, are done with ease. The QMS-PS 800 II is priced at $6495. QMS also debuted a new printer driver for the Macintosh that allows any of QMS's KISS printers to be able to be driven by a Mac. The MacKISS package, which includes the software and a cable, lists for $495. You can contact QMS at 1 Magnum Pass, Mobile, AL 36618.

Cornerstone Technologies showed the Vista 1600, a monochrome display subsystem for the Macintosh II. A subsystem is a peripheral device that includes a controller card, which is inserted in any available slot in the computer. Subsystems are well know in the IBM marketplace, and are now coming to the Mac. The Vista 1600, at $2195, is a 19-inch monitor with a 1600 X 1280 pixel resolution. Due to the controller card, the subsystem is unable to display more than two bits per pixel (unlike the 256 the Apple card is capable of). This limits the display to the same grays available on the Mac Plus and SE. It is the only video controller card for the Macintosh II that is unable to take advantage of all the gray shades the Mac II is capable of. Cornerstone can be reached at 175A East Tasman Dr., San Jose, CA 95134-1620.

Among the other new product introductions, Priam was showing three new SCSI hard drives. The EM40, EM100 and EM230 hold 38 ½, 103 and 234 megabytes, respectively. My first impression (and without intensive testing) indicates very impressive speed. Priam, the hard disk speed leader in the IBM market, is eager to become the speed leader in the Mac arena. Digital Communications Associates, Inc. (DCA) showed their new MacIRMA board for the Mac SE and Mac II. IRMA, the first coaxial connection to hook up IBM PCs to IBM mainframes, became an instant leader in the mainframe link marketplace. As with the IBM version, MacIRMA lets your Macintosh function as a fully functional 3278/9 terminal with additional file transfer abilities. MacIRMA retails for $1195. Another new product shown was Mac+PC, from PerfecTEK Corporation. At $995, Mac+PC gives your Macintosh Plus IBM compatibility using a 640K, 5 MHz 8086 daughter board. Using 5 ¼" drives and controllers from other third-party manufacturers, Mac+PC allows you to run most IBM PC software.

Priam can be reached at 20 West Montague Expressway, San Jose, CA 95134, (408)434-9300. DCA is at 1000 Alderman Dr., Alpharetta, GA 30201-4199, (404) 442-4000. You can reach PerfecTEK at 726 South Hillview Dr., Milpitas, CA 95035. (408) 263-7757.—*DS*

Feats of Engineering

The power of the Mac II has opened up a number of new software and hardware frontiers. Not the least of these is the CAD/CAM market, or in Apple parlance, "desktop engineering."

One way to winnow the putative markets from the real ones is to see what kind of extra-market support springs up, such as newsletters and magazines. The appearance of *The CAD/CAM Journal for the Macintosh Professional* a few months ago lends credibility to Apple's claim that desktop engineering could come to rival desktop publishing as a Macintosh niche.

The CAD/CAM Journal is a bimonthly publication whose fourth issue should be appearing as you read this. It is the first—and so far the only—publication to exclusively cover the desktop engineering market. It features software and hardware, along with on-site looks at the technology in actual use.

Subscription prices are $20 per year domestic; $32, foreign. For more information write to *The CAD/CAM Journal,* 16 Beaver St., New York, NY 10004, or call (212) 425-4441.—*LK*

Words into Money

Have you recently purchased or plan to purchase *Word* 3.0? Microsoft recently announced a special rebate program for current *MacWrite* owners who just have or are considering buying *Word* 3.0 from Microsoft. If you are a *MacWrite* owner and you purchased *Word* 3.0 (and paid over $200 for the package) between June 15 and September 30, 1987, you qualify for a $75 rebate available directly from Microsoft.

If you qualify for the rebate, simply compile your original (Apple label) *MacWrite* disk (or, if you don't wish to part with your disk, send in the front cover of your manual), a copy of your dated receipt and your registration card (if you haven't sent it in already). Send them all to *MacWrite* Trade-in Offer, 16011 N.E. 36th Way, Dept. SS/116, Redmond, WA 98073-9717. If you have any questions, Microsoft asks you to contact them at (800) 323-3577.—*DS*

A Mac of a Different Color

Platinum is not everyone's favorite new color, nor was beige everyone's favorite old color. But until recently you really didn't have a choice. Sure you could spray paint your Mac yourself, but that's a messy and complicated job. And I guess you could paper your Mac, taking care, of course, to cut out every ventilation slit.

There's an easier (although more expensive) way to a color Mac. Aesthetics Technology offers custom painting service for Macs. You send them your machine (and whatever accessories you need color coordinated) and they do the work. The cheapest option is black at $195, and stock Pantone colors are $295. (I really wanted the mint green version.) These prices include the mice and keyboards and are for Pluses and SEs. The old 512 and 128K Macs are more difficult to mask and require a $50 surcharge. Special and custom paint jobs are available. In the "semi-stock" range, you'll find a granite-like finish for $345 and woodgrain- and marble-like finishes for $895.

The painting is of professional quality and should stand up to the rigors of everyday use. While colored Macs might seem frivolous or toys for the rich, there are applications where color is useful. Consider the consultant selling a computer system to a professional office. Woodgrain computers (and a total overall look of elegance) might be just what's needed to clinch the sale.

For a full price list and more information, contact Aesthetics at 4E, 365 Forest Ave, Palo Alto, CA 94301. Their phone number is (415) 326-3936.—*SB*

RUMOR MANAGER

Esoteric storage devices are proliferating. CD-ROM looks more and more like a mass market reality early in 1988—that's almost a year ahead of original projections. And CD-ROM is just a part of the market. The HoverDisk project is nearly done. Some units may be shown in Boston. The best prototypes were in the 200-megabyte range. Projected price for these small, all-purpose, totally shockproof disks is $1999.

The real news in mass storage this month is DAT. DAT stands for digital audio tape and it's so good that it's a subject of copy protection controversy in the hi-fi world, even before it's available here. Well, just as CDs are good for both audio and data storage, so is DAT. These smaller-than-standard cassette-size tapes can hold a lot of data each, probably more than a CD. And unlike CDs, there are no writing problems with a tape. (Besides, how could we dislike a media whose name already is in a proper New York dialect?)

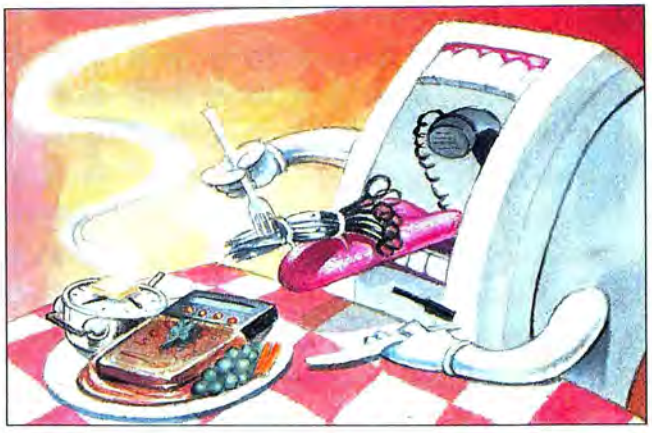
Word processors again. The new Acius product (from France, like *Fourth Dimension*) is very slick. If the price is right, it could be the real *MacWrite* replacement. The high end fight is really going to heat up this fall, with new competitors from England (actually a major revision of a current product), New England and the LA area.

It appears someone was listening to us at Apple. Our offices were graced with yet another Laptop Mac prototype. This one is much smaller and lighter than any we've seen before. It weighs a mere 6 pounds, including its removable rechargeable battery pack. Of course, these size and weight savings have extracted a cost: There's no data storage device other than two 1.6-meg floppy drives. Regular hard disks are too big and use too much power, so something new will have to be used. DAT is being explored. The screen is a 600 X 480 pixel black and white job with terrific resolution. We were told that the machine is fully color capable and that the only reason the proto didn't have a color screen was that the parts just weren't available. Be warned about one thing though. When this gem is released in 1988 (in whatever final form it takes), it is going to be very expensive. $5000 seems low.

Desktop publishing continues to boom. Lots of new programs are on their way to the market. Just as everyone once thought they could write a data base, now everyone has a page layout program. Although Aldus, Quark and Letraset don't appear to be worried yet, there are some real nice things coming. look for one from Georgia and one from the heart of Texas.

Since the average price of a desktop publishing program is nearly $500, the average user isn't going to have too many of them. A market is starting to spring up in handy DAs and utilities that add more advanced feature to the less able (and usually older programs). Check these products out, particularly if your page layout program doesn't do everything you want.

Another DA, Another Way



Back in our April 1987 issue "One D A At A Time," told you exactly how to modify *Font/DA Mover* and your *System* file so you could have more than 15 DAs (Apple's limit) ready for use at any time. The article was directed specifically at version 3.2 of the *Font/DA Mover*. Since that time new versions of *Font/DA Mover* (3.4 and 3.5) have been released by Apple. The patch provided in the original article doesn't work with these new versions, but Bill Steinberg, the author, has provided a patch that *will* work with versions 3.4 and 3.5. [*Editor's Note: Don't simply apply this patch. Read the original article! Simply patching* Font/DA Mover, *without taking the other steps outlined in the article, can lead to serious* System *problems.*]

The correct patch to apply (using *Fedit Plus, MacTools* or your favorite disk editor) is to search for 001A 5EC1 and replace it with 002F 5EC1. Then search for 6708 3B7C and change it to 6608 3B7C. 6708 3B7C occurs twice and should be changed twice.

Also note that two additional unit table numbers (or slots) are reserved for users of *AppleShare*. These slots are numbers 40 and 41, and are used for *AppleShare*'s .XPP and .AFP drivers, respectively. If you use or are hooked up to an *AppleShare* network be sure to create dummy resources (as described in the original article) for slots 40 and 41.—*DS*

UPDATES

Programs, like people, change over time. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version number (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the About... item at the top of the Apple menu.

Apple System software is special. If you don't have the latest *System* and *Finder* you can get them free from an authorized Apple dealer. Be sure to bring in a blank disk or two, though. Be sure to see "The Help Folder" in this issue for more information on which System software you should be using.

All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible; this is not yet a comprehensive list; S, shareware (try before you buy software); and 5, requires at least 512K of RAM.

Acta	1.2	NCP,//
Aztec C	1.06H.1	NCP
Back to Basics	1.03	NCP
Balance of Power	1.03	CP
Business Filevision	1.1	CP
CalendarMaker	2.3	NCP,S
Chooser	3.1	NCP,
ClickArt Effects	1.1	NCP,//
ColorChart	1.3	NCP
ColorMate	2.1	NCP
ColorPrint	2.03	NCP
ComicWorks	1.0	NCP,//
ConcertWare+	3.1	NCP,//
Copy II Mac	6.5	NCP
Copy II HD	6.5	NCP
Cricket Draw	1.01	NCP,//
Cricket Graph	1.1	NCP,5
DesignScope	1.14	NCP,5,//
Disk Express	1.10	NCP,5
Disk First Aid	1.0.1	NCP,5
DiskInfo	1.45	NCP,S
Disk Ranger	2.6	NCP
Dollars & Sense	1.4	CP,//
Easy3D	1.01	NCP
Edit	2.0	NCP
ExperCommon Lisp	2.2	NCP,5
ExperLisp	1.5	NCP,5,//
ExperLogo	1.1	NCP
EZ Draft	2.0B	NCP,5,//
Fedit Plus	2.0	NCP,//
FileMaker	1.0	NCP,//
FileMaker Plus	2.0	NCP,//
Filevision	1.0	CP
Finder (MFS-128K)	4.1	NCP
Finder (HFS)	5.5	NCP,5
FlashBack	1.4	NCP
Flight Simulator	1.0	CP
Fokker Triplane	1.0	CP
FONTastic	2.7	NCP
Font/DA Mover	3.5	NCP
Fontographer	2.3	CP,5
Frame Mac	1.1	NCP,5,//
Front Desk	3.02	NCP
FullPaint	1.0	NCP,5
Gato	1.42	CP
Hard Disk 20	1.1	NCP,5
Hard Disk Utility	2.0	NCP,5
Helix	2.0r11	NCP,5
Helix, Double	DH1r35	NCP,5,//
HFS Backup	2.01	NCP,5
HFS Locator Plus	1.4	NCP
Illustrator	1.0	CP/NCP, 5,//
ImageWriter	2.6	NCP
ImageWriter, AppleTalk	2.6	NCP
Insight GL	1.0	NCP,5,//
InTalk	2.1	CP
Jazz	1A	CP,5
JustText	1.1	NCP,5
Laser Author	1.3	NCP,5,//
Laser Prep	4.0	NCP
LaserWriter	4.0	NCP
Lightspeed C	2.01	NCP
Lightspeed Pascal	1.0	NCP
Lode Runner	1.0	CP
Mac-3D	2.0	CP
MacASM	2.0	NCP
MacBillboard	4.01	NCP,S
Mac C	5.0	NCP,//
MDS	2.0	NCP
Mac Disk Catalog II	2.1.1	NCP
MacDraft	1.2a	NCP
MacDraw	1.9	NCP
MacGolf	2.0	CP
MacInTalk	1.1	NCP
MacLabeler	2.2	CP
MacLightning	2.0	NCP,//
MacMoney	2.02	NCP
MacNosy V2	2.47	NCP
MacPaint	1.5	NCP
MacPalette	1.0	CP
MacPascal	2.1	CP
Mac +][	3.0	NCP
MacProject	1.1	NCP
MacProof	2.0	NCP
MacSafe	1.03	CP
MacServe	2.1	CP,5,//
MacSpec	1.3	CP
MacSpin	1.1	CP
MacSpool	2.1	NCP
MacTerminal	2.0	NCP
MacTools (MFS/HFS)	6.5	NCP
MacWrite	4.5	NCP
Mac Zap Copier	4.52	NCP
MailManager	1.0	CP
Measure Test	9.5	CP,S,//
MicroPhone	1.0	NCP,//
Micro Planner Plus	5.7	CP
MindWrite	1.1	NCP
miniWriter	1.38	NCP,S
MockPackage+	4.3.4	NCP,S
MORE	1.1	NCP,//
MS BASIC	3.0	NCP
MS Chart	1.0	CP
MS Excel	1.04	NCP,//
MS File	1.05	CP
MS Fortran	2.2	NCP
MS Word	3.0	NCP
MS Works	1.0	NCP
Multiplan	1.1	NCP,//
MusicWorks	1.1	CP
myDiskLabeler	2.11	NCP
Neon	2.0	NCP
Omnis III Plus	3.24	CP,//
OverVUE	2.1	NCP,//
PackIt III	1.2	NCP,S
PageMaker	2.0	NCP,5
PictureBase	1.2	NCP
Plain and Simple	4.1	NCP,5,//
QUED	1.55	NCP
Quick & Dirty Util., Vol. 1	1.6	NCP
Quick & Dirty Util., Vol. 2	1.1	NCP
Rags to Riches	3.0	CP,//
RagTime	1.1	CP,//
Ready, Set, Go! 3	3.0	NCP,//
Record Holder	2.1	NCP
REdit	1.2	NCP
Red Ryder	9.4	NCP,S
Reflex	1.0	NCP
ResEdit	1.1d12	NCP,//
Sargon III	1.0	CP
SideKick	2.0	NCP
Silicon Press	1.1	NCP
Slide Show Magician	1.3	CP
Smartcom II	2.2B	NCP,//
SoundCap	4.4	CP
SpellNow	1.0	NCP
Spellswell	2.0	NCP
StatView 512+	1.0	NCP
StatWorks	1.2	NCP,//
Stella	1.3	CP,5,//
Straight Talk	2.08	NCP,//
Studio Session	1.4	CP
SuperPaint	1.00	NCP,5,//
Switcher	5.1	NCP,5
System (MFS-128K)	2.0	NCP
System (HFS)	4.1	NCP
Tempo	1.1	NCP
ThinkTank 512	1.3	NCP
Thunder!	1.0.1	NCP
ThunderScan	3.4	NCP
TML Pascal	2.01	NCP
TMON	2.585	NCP
Top Desk	2.1	CP
Turbo Maccountant	2.0,	NCP,//
Turbo Pascal	1.0E	NCP,//
VersaTerm	3.0	NCP
VersaTerm Pro	2.0	NCP
VideoWorks	1.1	NCP
WriteNow	1.0	NCP,//
ZBasic	3.02	NCP

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- Plot a graph
- Generate a report, then send the output to your printer, disk file or screen
- Or all of the above

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You can key in:

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- ☑ Inequality solutions
- ☑ Supports Macintosh II color monitor

Minimum system requirements:
Any Macintosh with at least 512K.

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BORLAND

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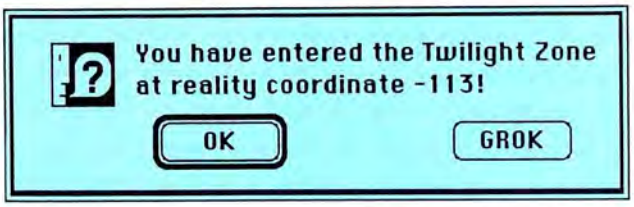
My Two-Headed Brother

Brother International's Twinriter 5 printer has two printheads mounted side by side, like Siamese twins. The dual-purpose printer operates either as a pokey but pretty 35 character per second (cps) letter-quality daisy wheel, or as a quick and dirty (140 cps) dot matrix printer. Heralded as the first of its kind, the bidirectional Twinriter 5 can switch heads while still printing on one page, so you can freely mix letter-quality text and dot matrix graphics—a boon to fussy desktop publishers.

Any scientific symbols or accent marks not found on the daisy wheel printhead can be produced by a triple-pass with the dot matrix head. The printer has a noise rating of 60 dB—lower than a jackhammer, higher than a sleeping baby.

Special *MacDriver* software was written by Brother to run the Twinriter 5 and other Brother printers with Macintosh computers. *MacDriver* converts text commands into daisy wheel print and translates graphics commands into 9-pin dot matrix print. The Twinriter 5 is available for $1,295, and *MacDriver*, which comes with a cable, costs $99.—*BT*

DIALOG BOX OF THE MONTH



Reality. What a concept. And one of its worst aspects could be seeing your *MacSpin* model take a leap beyond, deep into the Twilight Zone. Chances are you'll never see this very rare dialog box unless you are working with limited memory (a 128K Mac or a very small *Switcher* partition) and you try to do some intensive memory operation. Clicking on GROK will not make Rod Serling or Michael Valentine Smith appear, but it will take your Mac into an area that is as close as most users want to get to that Twilight Zone, the debugger.

Have you come across any unusual dialog boxes lately? Share them with us by sending them to Dialog Box, c/o of *MacUser*, 25 West 39th Street, New York, NY 10018.—*DS*

DEFORMED.

Forms deformed? If producing a presentable form has always been a formidable task, you'll appreciate the scene on the far right. It's TrueForm™—the first and only Macintosh™-based system that lets you deftly deal with any form you feed it.

TrueForm is not just another forms software package, although it does offer you a choice of 20 ready-made forms to use. And it's not just a design-your-own-forms program, yet it lets you do that, too.

If you fill out lots of forms, lots of different kinds of forms or forms supplied by other people, TrueForm will transform your working world.

Feed any form into TrueForm's Image Scanner, and it's transmitted to your screen. Complete with logo and graphics. In seconds.

Next, you teach your computer how to fill out the form. You can supply information from your keyboard, or merge information from any database, or use TrueForm as an incredible forms-oriented spreadsheet.

Then print your perfect form with your LaserWriter® or ImageWriter®. Print the information on an original form. Or produce the entire completed form—graphics and all—on blank paper. Eliminate the problem of obsolete or out-of-stock forms inventories. Plain paper may be the only form you'll ever need again!

TrueForm makes it easy to set up a form, choosing the type font, size and style for each field. And with TrueForm you can capture and store both the forms you use and the data on them. Recall and reuse them. Save hours every day.

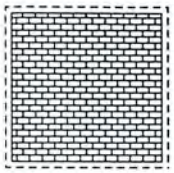
BUG OF THE MONTH

This month's Bug of the Month comes to us from Chris Toeppen of Menlo Park, CA. Chris discovered a number of bugs while working with the original version (1.0) of Silicon Beach's *SuperPaint*. Of the bugs Chris discovered (or uncovered, depending on how you look at it) the following was a clear winner for this month's award.

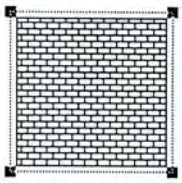
To recreate this bug, walk through these steps. Begin by entering *SuperPaint* and creating a patterned rectangle in the Paint layer. Select this new box with the marquee and then pick any of the "effects" commands from the Paint menu. The commands that will produce a bug are: Free Rotate, Stretch, Distort, Slant or Perspective. The next step, without doing anything else, is to switch to the Draw layer and then back to the Paint layer.

After returning to the Paint layer, the "effects" handles will still be available for your manipulation. Move your crosshair cursor to any handle (the small black squares) and attempt to perform the command that you started prior to switching levels. After you release the mouse, the bug will show itself by producing very unusual results on the selected area. Depending on the "effect" command chosen, different problems will result, the worst being a frozen screen or a bomb.

For uncovering this bug, Mr. Toeppen will receive $25. Next month it could be you holding the $25 check. And you can't win if you don't enter. Send any bugs that you may have stumbled upon to Bugsy, c/o MacUser, 25 W. 39th St., New York, NY 10018. Always remember to include all of the related details, including what *Finder* and *System* versions were used, what non-standard DAs were installed, and so on, and exactly what you did to get the bug to appear.—*DS*

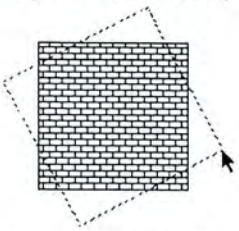


1) Create a rectangle and marquee it.

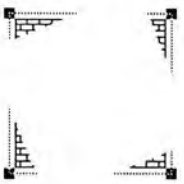


2) Choose an "effect" from the Paint menu. We used FREE ROTATE.

3) Switch from the Draw level and then back to the Paint level.



4) Perform the effect. Again, we used FREE ROTATE.



5) The results.

TRUEFORMED.

The TrueForm system consists of the TrueForm software package, Image Scanner and MacScan™ software. It's just $1,995 with an unconditional 30-day money-back guarantee.

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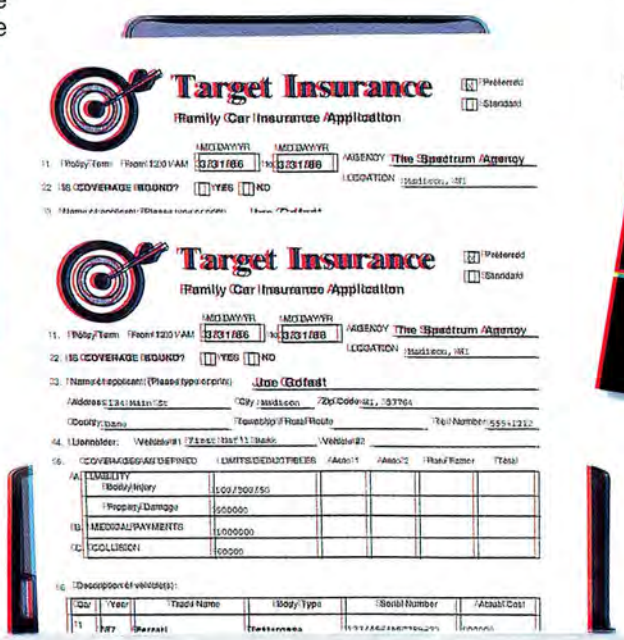

TrueForm works with the Apple® Macintosh 512, Macintosh Plus, Macintosh SE, and Macintosh II. (Scanner requires a SCSI interface.)

Don't deform another form. Reform today with TrueForm, from Spectrum Digital Systems.

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Charles Simonyi, Chief Architect, Applications, Microsoft Corporation.

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Microsoft Word is available for the IBM PC and compatibles and the Apple Macintosh.

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To create the most ever devised. I don't succeeded."

Introducing Microsoft Word 3.0

MICROSOFT WORD VERSION 3.0 is a powerful word processing program that offers an unprecedented range of choices for the look of your document. With Word, you can mix graphics and text, within a paragraph or side-by-side. It provides built-in support for snaking and side-by-side columns. And you initiate automatic hyphenation, for a tighter, more professional appearance.

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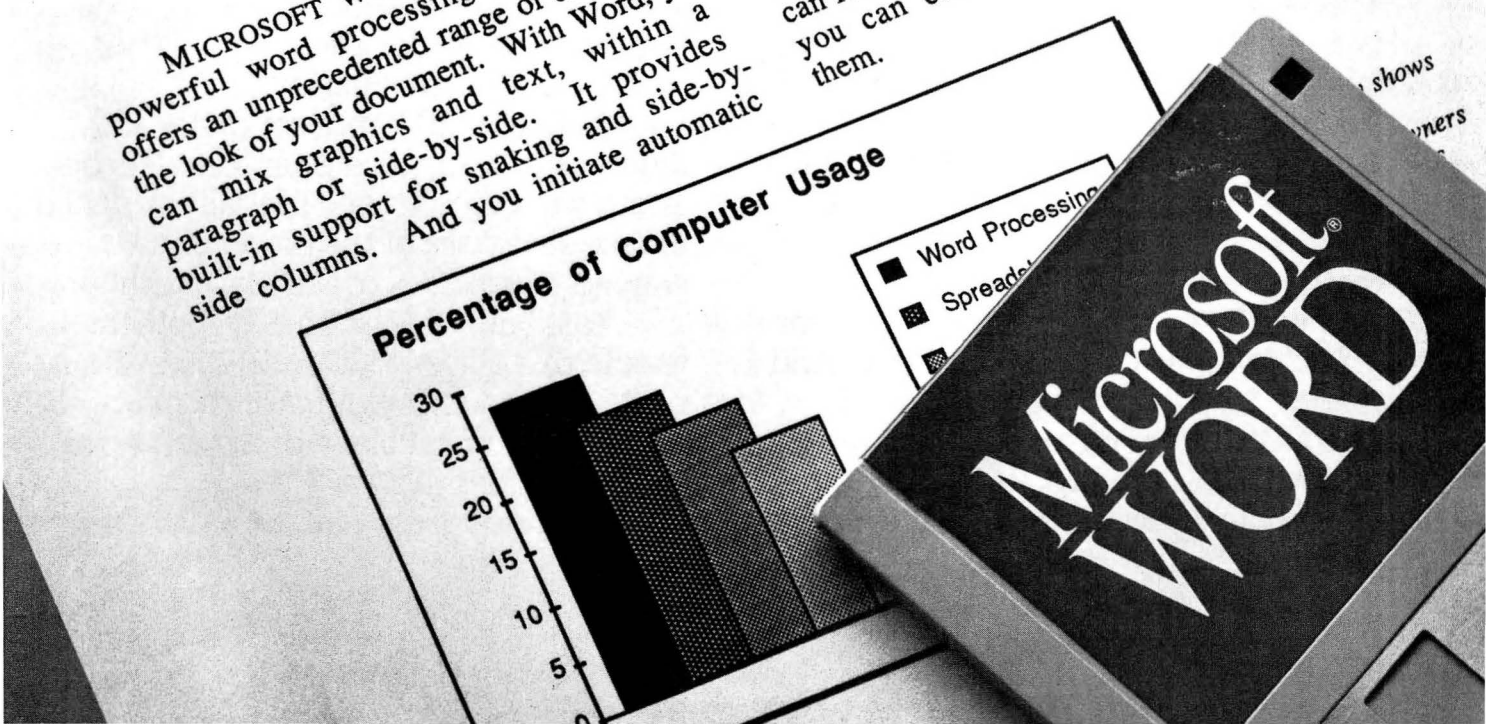

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by Robert R. Wiggins

Inhuman Factors

You remember human factors. Sure you do. "Ergonomics" is the new buzzword, but we used to call that "human factors engineering." And somehow, "Ergonomics" just doesn't sound right when referring to software, so I'm trotting out our old friend. Human factors. It's not even sexist. It's just not trendy enough, I guess. But enough about that.

One of the good things about writing for a magazine like *MacUser* is getting to try lots of software. One of the bad things about writing for a magazine like *MacUser* is having to try lots of software. I get to see a lot of amazing new products. But I have to try to use a lot of clunkers, too.

What makes a Macintosh program a clunker? Sometimes it's an absence of function, but it usually boils down to human factors. In the early days of microcomputers, users were happy just to be able to get work accomplished, even if it meant learning arcane key combinations and strange commands. The Macintosh changed all that. It used the increasing power of the microchip to make an easier-to-use computer. We got used to easy-to-use pull-down menus, pointing and clicking, and recognizable icons.

Some of the early software for the Macintosh redefined easy-to-use: *MacWrite*, the simplistic yet powerful word processor; *MacPaint*, possibly the greatest user interface ever designed (and likely the most copied); *Multiplan* (and its successor, *Excel*), the first user-friendly spreadsheet. Part of the greatness of the human factors in these programs was due just to the Macintosh interface, and the enforced compatibility across applications. But the other part was some excellent design work. The ruler in *MacWrite* is classic. Anyone can quickly puzzle out which icon means what. The palette in *MacPaint* is even easier to figure out. The multiple cursors in *Multiplan* (and *Excel*) provide instant information about what will happen when the mouse button is pressed.

So what happened? The Macintosh of today is far more powerful than the little one that debuted in 1984. So programs should be getting even easier to use, right? Quite the reverse, especially when talking about business software.

For some reason, developers of business software seem to be attracted to complexity like moths to a flame. Perhaps it is because they are looking to the IBM-PC business software market for their inspiration (like *Word 3.0*). Whatever the reason, business software for the Macintosh has a tendency toward needlessly complicated menus and dialogs, and thick manuals that are required to even begin to understand how the programs operate. Much Macintosh business software seems to have been designed from a feature list—with the interface tacked on at the last minute—as opposed to having the interface be an integral part of the design (like the rulers in *MacWrite* and the palette in *MacPaint*).

Even good business software wanders off the path of good human factors from time to time. *Excel* has its share of complex dialog boxes. *PageMaker* has its complex "type specs" dialogs. *Xpress* has its inability to cut and paste boxes, and its disregard for the standard backspace as delete. *PowerPoint* has its difficult to configure Font menu. *Trapeze* has its confusing Cursor Icon menu, and its help facility that you must already know how to use.

In the quest towards giving the user more options, there is also an undesirable trend towards new and nonstandard key combinations. In the early days, COMMAND-C always meant copy, and many other keys acquired "default" meanings. *MacWrite* users are used to COMMAND-B meaning bold. Now, *PageMaker* and *Xpress* use COMMAND-SHIFT-B to mean bold, and use COMMAND-B for other purposes (Send to Back in *PageMaker* and Frame in *Xpress*). *Word 3.0* did one better, and changed some key combinations from its previous version, 1.05, leading to massive user confusion.

HUMAN FACTORS HALL OF SHAME

There have been many poorly designed business programs, but these are the ones that had the most potential and whose failings were therefore all the more saddening:

Word 3.0. Discussed in detail two months ago, the byzantine menu structure and myriad key combinations (including some without equivalent menu commands) qualify it for inclusion. Too many options can be as deadly as not enough.

MindSight. Possibly the single most powerful program available for the Macintosh, capable of incredible financial modeling. But hobbled by a hard-to-understand interface and crippled by poor output formatting.

The original MicroPlanner. Again, a very powerful tool, this time for project management, rendered almost useless by a confusing interface and ugly output. (This one was fixed! *MicroPlanner Plus* was a giant leap forward, and is one of this month's Pinstripe Picks. So there should always be hope!)

All Accounting Software. Yes, all of it. Even the one everybody says is Maccish because it has an icon bar. No one has yet made an easy-to-use accounting program.

THE HUMAN FACTORS HALL OF FAME

While far too many business programs miss the mark, some achieve greatness through great design and ease-of-use.

Excel. The king of spreadsheets. Not perfect, but stands head and shoulders above *Lotus 1-2-3* on the IBM-PC.

FileMaker Plus. A simple database program, but one that is easy to learn and use that can produce attractive reports.

4th Dimension. Perhaps because it was written by a Frenchman with both the French and American markets in mind, here is a data base where pointing and clicking is the primary method of operation. It's still very new, so problems (if any) may lie undiscovered, but it appears to be a human factors winner.

THE FUTURE OF HUMAN FACTORS

What does the future hold?

On the downside, I'm afraid that there will be more and more IBM-PC-like programs as developers for that machine discover the growing Macintosh business market and "port" their packages over to the Macintosh. This will be especially true for vertical market applications. This is bad from a human factors

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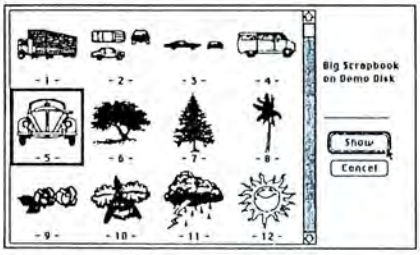

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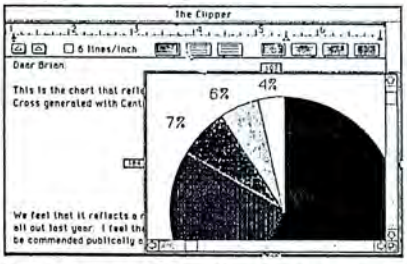

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WYWIWYG

What You *Want* Is What You Get

In One Program

Desktop Publishing Quality

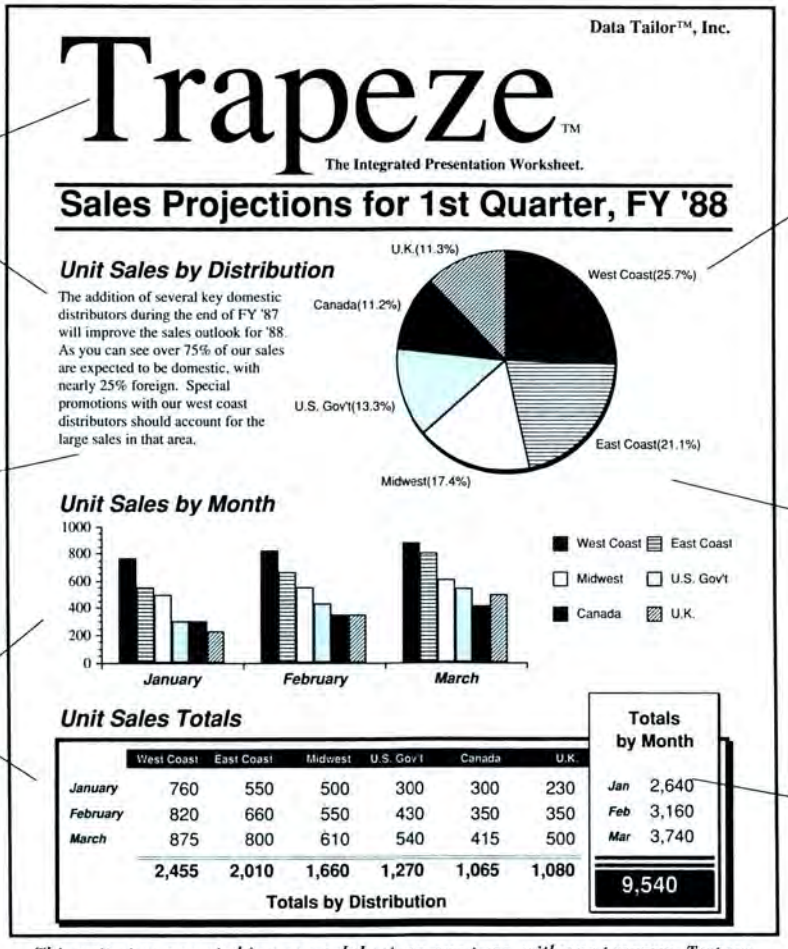
Trapeze lets you use any Macintosh™ font, style, size or color in any block of information, and mix them on a single worksheet. Combining graphics and layout capabilities with powerful data analysis adds a whole new dimension to desktop publishing.

Everything On One Worksheet

Put calculations, text, pictures and charts all on the same worksheet – no need to import from other programs. And have up to 32 worksheets open at the same time.

"Live" Information

No longer are last-minute changes a problem, because your information remains active. Make additions, deletions or "what-if" changes to your data as often as you wish. Trapeze will update every related block of information, including charts. No other program offers this powerful capability.



Flexible, Automatic Charting

Trapeze offers automatic charting functions which surpass even dedicated "chart and graph" programs. Eleven basic chart types are built-in, with thousands of variations possible with a simple click or two of the mouse. And if your information changes, Trapeze updates all related charts automatically.

Power You Control

No matter how complex the data, Trapeze provides the powerful functions you need for analysis. Yet, you retain complete freedom to manipulate the information and its presentation.

Integrated Presentation Worksheet

The result is a clear, eye-catching representation of your information that can make the difference between selling your ideas and sitting on them. Only Trapeze gives you a presentation-quality worksheet in one, integrated program.

This output was created in one worksheet, on one page, with one program: Trapeze.

A lot of programs are promising that what you see on the screen is what you'll get in the output. The problem is that by the time you get all of your information on the screen, what you see may no longer be what you want. Perhaps you made a change in your spreadsheet and forgot to change a related chart. Or maybe the text doesn't reflect your most recent information. The only way to make changes is to return to the original program, make the changes, and then do a lot of cutting and pasting between programs to get it all on one worksheet again. Not exactly a quick and easy task.

Trapeze offers an alternative: the first truly integrated presentation worksheet. It combines spreadsheet, data analysis, text, charting and graphics capabilities in a single program – and lets you perform any or all of them on a single worksheet without the hassle of juggling several programs at once.

We believe that Trapeze 2.0 is the most powerful and flexible presentation worksheet on the market. And we believe that, once you try it, you'll agree. In fact, we'll refund your money if you return it within 30 days.

Visit your local dealer today for a demo or call us at 1-800-443-1022. **Stop settling for what you see – get what you want with Trapeze.**

Trapeze™

The Integrated Presentation Worksheet.

Minimum system requirements: enhanced Macintosh 512K with 800K external drive. Runs on Macintosh versions 512e, Plus, SE and Mac II (*in color!*). Supports Laserwriter™ and Imagewriter™ I and II.

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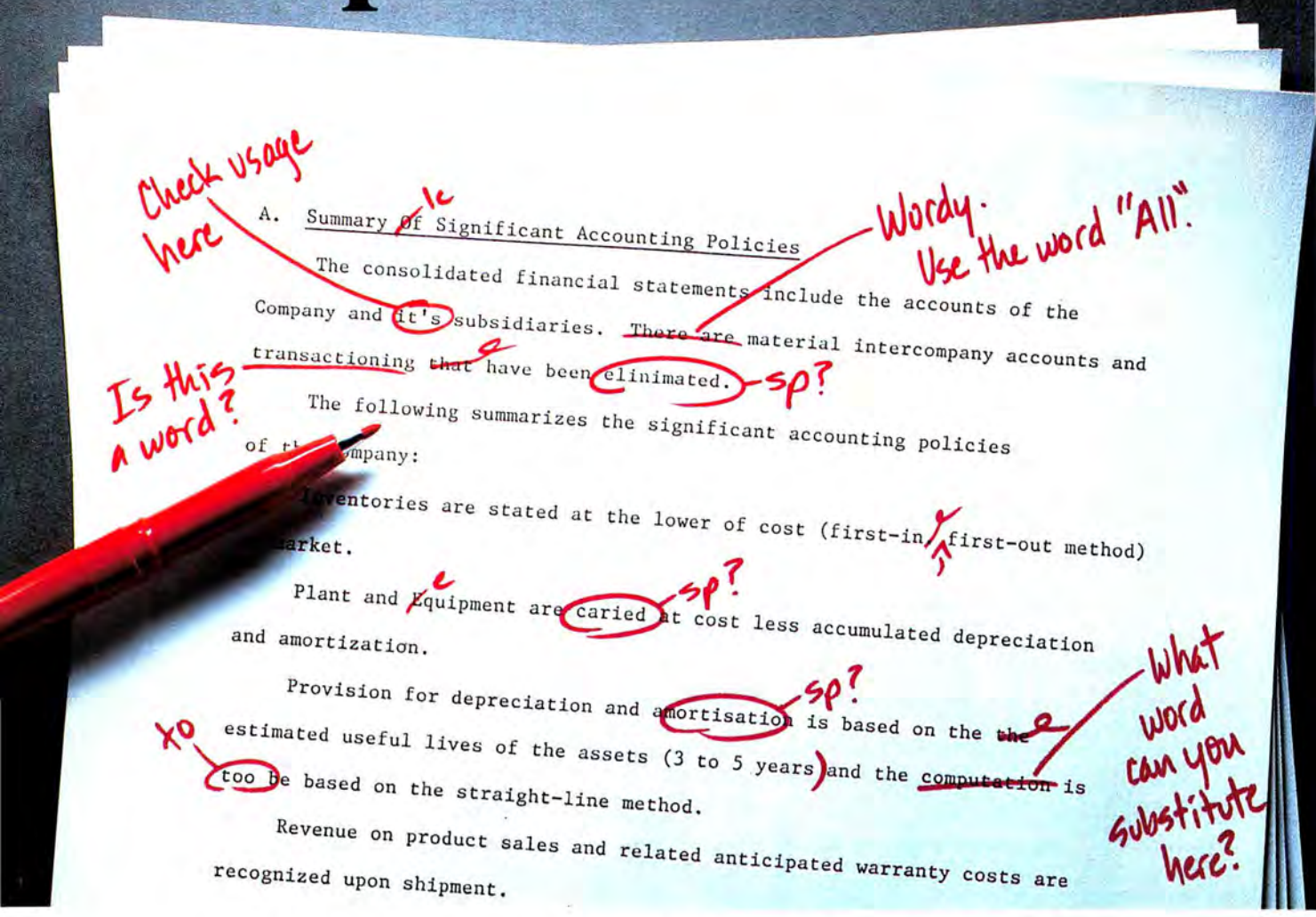

Introducing MacProof 3.0

You toil for hours getting an important business proposal just right. Only to have your boss send it back to you with more red marks on it than white space. That's not a pretty sight.

With MacProof™ 3.0, you may never see red again. MacProof is a Desk Accessory software package for the Macintosh®, that points out possible errors in style, usage and the mechanics of writing. A few clicks of the mouse makes a correction. MacProof can even make you a better writer over time by indicating possible mistakes, suggesting solutions—and letting you decide what action to take.

All the proof you need.

MacProof incorporates features that can make writing a breeze instead of a burden. An 80,000 word dictionary checks your spelling. Writing mechanics such as punctuation, capitalization and double words are reviewed.

MacProof checks for problems of usage such as racist or sexist words, words that are often confused (e.g. its and it's) and imprecise or wordy writing. It even searches for problems in style such as an overuse of "be" verbs or non-standard words that make your writing less active and precise.

Extra credit.

MacProof adjusts itself to suit your writing style and problem areas. You decide which aspects of usage, style or mechanics you want checked and MacProof will check only those areas. You can even add your own usage category for MacProof to analyze. And since MacProof works as a Desk Accessory, you can check for errors, review solutions and make corrections without ever leaving your document.

MacProof can give you word, sentence and paragraph counts in a document. Other features allow you to analyze the structure and flow of a document. And MacProof works with most word processing software for the Macintosh, including MacWrite™, MicroSoft Word™ 3.0, PageMaker™, WriteNow™ and MindWrite™.

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Salt Lake City, Utah 84108
1-800-354-5656
1-801-584-3000

Automated Language Processing Systems

See a demonstration of MacProof 3.0 in Booth 1906 at MacWorld Boston.

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standpoint, but it is still good overall since it will allow more business users to choose the Macintosh over the IBM. The color capabilities of the Macintosh II also give developers the opportunity to misuse color in the user interface.

On the upside, Bill Atkinson, creator of *MacPaint*, is rumored to be hard at work on a new product (and has been for some time now). We can only hope that he will again blaze a human factors trail that others can follow. And the color capabilities of the Macintosh II have the capacity to improve human factors if used carefully and judiciously.

The product I await, though, is the easy-to-use accounting package. *Insight* is a step in the right direction. And *Accountant, Inc.* has some promise, especially with its ability to name accounts instead of number them. If someone could take the best of these two products, design a better interface, add some flexibility and adaptability and top it off with some LaserWriter magic, the Mac could end up as the computer of choice among small to medium businesses.

PINSTRIPE PICKS

Most of the following products should be on display somewhere at the Boston Mac Expo. I recommend you track them down and take a look.

Mirco Planner Plus (from Micro Planning Software, U.S.A.)—a full-featured project tracking and control system using standard PERT techniques, with features such as resource loading analysis and time-critical scheduling.

MapMaker (from Select Micro-Systems)—a powerful yet easy-to-use tool for creating demographic maps (or just plain old maps) of the world, the U.S. or of states by county. An indispensable tool for geographic marketing analysis.

Century Laser Fonts (from Century Software)—a large collection of downloadable LaserWriter fonts. Of particular interest are the Shadow Effects Fonts and MicroFonts Plus. These fonts must be seen to be fully appreciated.

4th Dimension (from Acius)—a very powerful relational data base and programming environment. I can't begin to describe all that it can do. You really should see this product for yourself.

Trapeze 2.0 (from Data Tailor)—a major upgrade (including Undo) to what is now called a "presentation worksheet." An interesting product that could be what you've been looking for.

Trade up to Word, and we'll give you $75 for MacWrite.

You can't go MacWrong.

Microsoft® Word Version 3 is the most powerful word processor available for any PC. Yet moving up to it from MacWrite™ couldn't be easier.

Word reads MacWrite files, so you'll still be able to read and write to your old documents.

Word's "short menus" are almost identical to MacWrite's, so you'll hardly notice the changeover.

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Here's the deal:

You get Word. Then you send us your original MacWrite disk, Word registration card and proof of purchase.*

And we send you $75.

Call us crazy, if you like. But call the number below, or see your local Microsoft dealer.

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Microsoft®

*Minimum purchase price, $200.

This offer is not good in conjunction with any other promotion or upgrade offer and is good in the U.S. only from June 15 to September 30, 1987. In Alaska call (206) 882-8088.

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Programs & Peripherals

Programs Plus

Picks of the Month with Special Pricing!

MacSnap Internal Memory Expansions by Dove Computer Corporation

It's a safe bet that no matter what Macintosh model you have, Dove Computer has a MacSnap memory expansion product that matches your needs. That's because Dove has the most extensive line of high quality memory and productivity enhancement products available which are *easy to install* and represent a superior value! We've selected some of the most popular models at special prices and we'll include the MacSnap Toolkit *(Wrench, Case Cracker & Grounding Set)* at no extra charge to make installation a *SNAP!*

MacSnap Model 524 *(Designed for the 512K Mac with 64K ROM. Expands memory from 512K to 1024K)* ..... **139.**
MacSnap Model 524E *(Designed for the 512K Enhanced Mac with 128K ROM. Expandes memory from 512K to 1024K)* ..... **139.**
MacSnap Model 548 *(Designed for the 512K Mac with 64K ROM. Expands memory from 512K to 2048K)* ..... **359.**
MacSnap Model 548E *(Designed for the 512K Enhanced Mac with 128K ROM. Expands memory from 512K to 2048K)* ..... **359.**
MacSnap Plus 2 *(Designed to expand the MacPlus from 1024K to 2048K, not expandable)* .. **249.**
MacSnap Plus 2H *(Designed to expand the MacPlus or Mac SE from 1024K to 2560K using 1 Meg CMOS SIMMs. The 2H is expandable to 4 Megs)* ..... **569.**

WorksPlus Spell by Lundeen & Associates

WorksPlus Spell is the only spelling checker fully integrated with Microsoft *Works*. Once installed, it becomes part of *Works*, increasing it's power and flexibility. It's so easy to use, just click "check spelling" and Spell is off and running through the document at 24,000 words per minute, faster than any other spelling checker available. There's a super glossary feature which inserts often used words or phrases *(i.e. your name and address)* with just a key stroke. Spell can also hyphenate automatically for you. WorksPlus Spell checks and hyphenates in both interactive or batch modes. If you use *Works*, you must have WorksPlus Spell!

WorksPlus Spell ..... **35.**

Cricket Draw by Cricket Software

Cricket Draw is a pioneer object-oriented drawing program. It gives you command over many of the powerful graphics features of Postscript printers through an easy-to-use, familiar Macintosh program interface. Best of all is the precision that *Cricket Draw* gives you, allowing you to make fine improvements to your artwork in precisely graduated steps. *Cricket Draw* offers such features as shadows, graduated gray scales, bezier curves, and adjustable line thicknesses in .05 point increments. You can tilt, rotate, and shadow text, and you can place text along a curve or any other arbitrary shape. *Cricket Draw* also works in color on the Mac II.

Cricket Draw **169.00**

Central Point 800K Drive & Copy II Mac Bundle by Central Point Software, Inc.

Now you can add 800K of Apple compatible storage to your Mac at an affordable price. These 3.5 inch drives are functionally identical to Apple's Macintosh drives but cost half as much! The Central Point Drive connects to a Mac SE, MacPlus, or Mac 512K Enhanced computer and it is *SUPER* quiet and includes an *LED "IN-USE LIGHT!* To complement this high quality drive we are including at no extra charge, the most powerful disk backup and utility package on the market, the award winning, *Copy II Mac!*

Central Point 800K Drive & Copy II Mac Bundle **199.00**

Utility Software

Apple Computer Switcher Construction Set	14.	**Olduvai Software** DA-Switcher	26.
Berkeley System Design Stepping Out *(Macintosh Screen Extender)*	58.	Icon-It!	39.
Central Point Software Copy II Mac *(Includes MacTools)*	20.	**Personal Computer Peripherals Corp.** HFS Backup V2.0	34.
FWB Software Hard Disk Util	56.	Eureka! *(File Finding Accessory)*	18.
Hard Disk Backup or Hard Disk Partition	38.	**Softstyle** Printworks	42.
Ideaform Mac Labeler *(Version 2.2)*	29.	Laserstart	58.
DiskQuick *(Disk Librarian)*	29.	**SuperMac Software** SuperSpool *(ImageWriter Print Spooler Utility)*	39.
Infosphere MacServe *(Network Software)*	165.	Diskfit *(Backup & Restore Utility)*	49.
LaserServe *(LaserWriter Print Spooler)*	65.	SuperLaserSpool	99.
ComServe *(Modem Sharing Software)*	195.	Multi-User SuperLaserSpool	259.
MacMemory, Inc. MaxRam & MaxPrint	33.	**Think Technologies** LaserSpeed *(Single User)*	65.
		Williams & Macias myDiskLabeler	24.
		myDiskLabeler w/Color	33.
		myDiskLabeler w/LaserWriter Option	35.

Desk Accessory Programs

Affinity Microsystems Tempo	55.	**Imagine Software** Smart Alarms & Appointment Diary	38.
Batteries Included Battery Pak *(9 Desk Accessories)*	32.	**Silicon Beach Software** Accessory Pak #1	21.
Borland SideKick V2.0	59.	**Solutions, Inc.** SmartScrap & The Clipper *(New Scrapbook DA)*	41.
Cortland Top Desk *(7 New Desk Accessories)*	34.		

Languages

Apple Computer MacPascal	99.	Microsoft Basic Compiler 1.0	119.
Borland Turbo Pascal	59.	Microsoft Fortran Compiler 2.2	169.
Consulair Macintosh 68000 Development System	59.	**Think Technologies** Lightspeed C	125.
Mainstay V.I.P. *(Visual Interactive Programming)*	85.	Lightspeed Pascal	85.
Microsoft Microsoft Basic Interpreter 3.0	64.	**TML Systems** TML Pascal V2.0	68.
		TML Source Code Library	58.
		TML DataBase Toolkit	64.
		Zedcor, Inc. ZBasic	64.

Communications Software

Apple Computer MacTerminal	99.	**Software Ventures** Microphone	58.
Compuserve Compuserve Starter Kit	24.	**Think Technologies, Inc.** InBox-Starter Kit V2.0 *(3 Personal Connections)*	239.
DataViz MacLink Plus with Cable	149.	InBox-Additional Personal Connections	89.
Hayes Microcomputer Smartcom II	88.		

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Ashton-Tate dBase Mac 299.
Blythe Software Omnis 3 Plus 259.
Omnis 3 Plus Multi-User *(MacServe, Tops Network, Corvus, or Appleshare Network)* 499.
Borland Reflex 59.
Forethought FileMaker Plus 159.
Microsoft Mierosoft File 1.05 110.
Nantucket Corporation McMax *(Run dBase Programs on the Mac)* 219.
Odesta Double Helix 275.
ProVUE Development OverVUE 2.1 149.
Software Discoveries RecordHolderPlus 45.
MergeWrite 32.

Business Software

Apple Computer MacProject 159.
Batteries Included Isgur Portfolio System 125.
Time Link 32.
Bravo Technologies MacCalc 85.
Cricket Software Cricket Graph 125.
Data Tailor Trapeze *(Spreadsheet/Color Report Generator)* 169.
Forethought PowerPoint 209.
Layered Notes For Excel, PageMaker, or Microsoft Works *(each)* 42.
Legisoft/Nolo Press WillWriter V2.0 31.
Lotus Jazz *(Version 1.A)* 179.
Micro Planning Software Micro Planner Plus 299.
Microsoft Microsoft Works 1.0 189.
Microsoft Multiplan 1.11 110.
Microsoft Chart 1.02 72.
Microsoft Excel 1.04 224.
Satori Software Legal Billing 359.
Legal Billing II 519.
Project Billing 429.
Bulk Mailer 3.0 *Special* 89.
Bulk Mailer Plus *Special* 199.
Target Software Memorandum *(Attach Electronic Notes to Files)* 55.

Word & Outline Processors

Ann Arbor Softworks FullWrite Professional 169.
Apple Computer MacWrite 99.
Firebird Licensees Laser Author 109.
Living Videotext More 149.
Microsoft Microsoft Word 3.01 239.
OWL International Guide 79.
Guide Envelope System 99.
Symmetry Acta V1.2 *Special* 35.
Target Software Voila! 55.
T/Maker Company WriteNow 98.

Spelling & Grammar Checkers

Aegis Development Doug Clapp's Word Tools 45.
Aegis Speed Speller 29.
Word Tools Combo Pack 65.
A.I.P. Systems MacProof V2.0 *(Requires MacPlus)* 99.
Batteries Included Thunder! *(Interactive Spelling Checker)* 32.
Lundeen & Associates WorksPlus Spell *Special* 35.
Working Software Inc. Spellswell Spelling Checker & Proofreader V1.3 42.
Medical Dictionary *(35,000 Medical Terms)* 58.

Desktop Publishing

Aldus Corporation PageMaker 419.
Boston Publishing Systems The MacPublisher III 199.
Letraset Letra Hyphen 79.
Letra Index 79.
Ready, Set, Go! 3.0 249.
Ready, Set, Go! 4.0 289.
Orange Micro, Inc. Ragtime V2.0 *(Integrated Page Processing)* 229.
Solutions, Inc. Glue *(Adds "Print to Disk" Capability)* 41.

Accounting Packages

BPI BPI Entry Series-General Accounting 135.
Chang Labs *New Enhanced Version III Modules!* Rags to Riches GL, AR, or AP 125.
Rags to Riches Three Pack-*(GL/AR/AP)* 299.
Inventory Control 243.
Professional Billing 243.
Professional Three Pack-GL, Professional Billing, Payables 349.
Digital, Etc. *Turbo* Maccountant V2.0 *Special* 259.
Migent In House Accountant 99.
Monogram Dollars & Sense 81.
Business Sense *(GL/AR/AP)* 339.
Palantir General Ledger or Accounts Receivable 49.
Peachtree Back To Basics Three Pack *(GL/AR/AP)* 129.
Sierra On-Line MacOneWrite Three Pack *(GL/AR/CD)* 59.
Survivor Software MacMoney *(Financial Planner)* 42.

Statistics Packages

BrainPower StatView 512 Plus 179.
Cricket Software Statworks 77.
Systat Systat 3.1 *(Specify Mac 512K, Mac Plus, or Mac II)* 459.

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Graphics Software

Altsys Corp. FONTastic 27.
FONTastic *Plus* 49.
Fontographer 2.2 245.
Ann Arbor Softworks Full Paint 53.
Apple Computer MacPaint 99.
Broderbund Print Shop 39.
Toy Shop 32.
Casadyware Fluent Fonts *(Two-Disk Set)* 29.
Fluent Laser Fonts Vol. 1-15 *(ea)* 48.
Deneba Software Canvas 129.
Canvas DA 69.
MacrObject Library 20.
Dubl-Click Software World Class Fonts! Vol. 1 or Vol. 2 28.
World Class Fonts! *(Both Volumes)* 49.
WetPaint Vol. 1 or Vol. 2 28.
WetPaint *(Both Volumes)* 49.
Enzan-Hoshigumi *(USA)* MacCalligraphy 2.0 115.
Japanese Clip Art Vol. 1 *(Heaven)* or Vol. 2 *(Earth)* 59.
Hayden VideoWorks 59.
LaserWare, Inc. LaserPaint 319.
LaserWorks 199.
Miles Computing Mac The Knife Volume III, IV, V, or VI 27.
Mindscape ComicWorks 48.
GraphicWorks 1.1 64.
Silicon Beach Software SuperPaint 54.
Silicon Press 41.
Springboard Certificate Maker 35.
Certificate Maker Library #1 21.
Symmetry PictureBase V1.2 44.
T/Maker Click Art Letters or Personal Graphics 28.
Click Art Publications or Effects 28.
Click Art Letters II or Click Art Holidays 28.
Click Art Business Image 28.
Click Art Laser Fonts: Plymouth, Bombay, or Seville *(each)* 46.

CAD Products

Apple Computer MacDraw 159.
Challenger Software Mac 3D *(Enhanced Version 2.0)* 119.
Cricket Software Cricket Draw *Special* 169.
Enabling Technologies Easy 3D 69.
Professional 3D 199.
Innovative Data Design MacDraft *(Updated Version 1.2)* 159.

Educational/Creative Software

Addison Wesley Puppy Love 14.
Baudeville Ted Bear Discovers...Rainy Day Games 20.
Guitar Wizard 20.
Bogus Productions Studio Session 59.
Broderbund Sensei Geometry 64.
Davidson & Associates Speed Reader II 39.
Math Blaster or Word Attack! 28.
Electronic Arts Deluxe Music Construction Set V2.0 63.
First Byte/Electronic Arts Kid Talk, Speller Bee, First Shapes, or Math Talk 32.
Mathtalk Fractions, First Letters & Words, or Smoothtalker 32.
Great Wave Software KidsTime or TimeMasters 28.
Concertware+ 4.0 45.
Concertware+ MIDI 4.0 95.
Hayden MusicWorks 29.
Score Improvement System for the SAT 59.
Micro: Maps MacAtlas U.S.A. or MacAtlas World 49.
Mindscape Perfect Score SAT w/The Perfect College 46.
Rubicon Publishing Dinner at Eight 32.
Silver Palate Collection 28.
Dinner at Eight-Silver Palate Bundle 54.
Simon & Schuster Typing Tutor III 35.
Paper Airplane Construction Set 24.
Spinnaker Typing Made Easy 32.
Springboard Early Games for Young Children 28.
Easy as ABC 28.

Game Software

Accolade Hard Ball 24.
Activision Shanghai or Hacker II 25.
Hacker 16.
Portal 32.
Tass Times In Tonetown 22.
Artworx Bridge 5.0 21.
Avalon Hill Mac Pro Football 30.
Broderbund Ancient Art of War 27.
Bullseye Software Fokker TriPlane Flight Simulator 34.
Ferrari Grand Prix 34.
Electronic Arts Starfleet I 37.
ChessMaster 2000 30.
Pinball Construction Set 27.
Patton vs Rommel or One-On-One 27.
Seven Cities of Gold 27.
SkyFox, Archon, or Scrabble 27.
EPYX Winter Games or Sub Battle Simulator 24.
Firebird Pawn 27.
Hayden Software Sargon III 29.
Infinity Software, LTD. Grand Slam Tennis II 34.
World Cup Soccer 27.
Go 23.
Infocom Ballyhoo, Bureaucracy, Hitchhiker's Guide, Hollywood Hyjinx, Leather Goddesses of Phobos, Moon Mist, Stationfall, The Lurking Horror, Trinity, or Zork I *(each)* 25.
Zork Trilogy 45.
Intellicreations Alternate Reality/The City 29.
Microsoft Flight Simulator 1.0 32.
Miles Computing Inc. Downhill Racer or Harrier Strike Mission II 27.
Mindscape Balance of Power or Crossword Magic 32.
Deja Vu: A Nightmare Comes True 32.
King Of Chicago or Shadowgate 32.
Defender of The Crown, Sinbad, or S.D.I. 32.
The Uninvited 32.
Practical Computer Applications MacGolf 2.0 or MacRacquetball *Special* 35.
MacCourses 34.
Psion Psion Chess *(3D & Multi-Lingual)* 31.
Sierra On-Line Space Quest 32.
Black Cauldron 25.
King's Quest I, II, or III *(each)* 32.
Silicon Beach Software Enchanted Scepters 21.
Dark Castle 28.
World Builder 41.
Simon & Schuster Star Trek *(The Kobayashi Adventure)* 24.
Sir-Tech Mac Wizardry 35.
Sphere, Inc. GATO 26.
Orbiter or Falcon 26.
Sublogic JET 35.
JET Scenery Disk #7 *(South East Region)* 18.
XOR Software NFL Challenge 69.

Disk Drives/Hard Disks/Upgrades

AST Research
AST-2000 1399.
20 MB External Hard Disk with 20-MB Cartridge-Tape Backup for the Macintosh Plus.
AST-4000 3699.
74 MB External Hard Disk with 60-MB Cartridge-Tape Backup for the Macintosh Plus.
Central Point
Central Point 800K External Drive with Copy II Mac *Special* 199.
Dove Computer Corporation
MacSnap Model 524 *(512K to 1MB Upgrade)* *Special* 139.
MacSnap Model 548 *(512K to 2MB Upgrade)* *Special* 359.
MacSnap Model 548S *(512K to 2MB Upgrade w/SCSI Port)* *Special* 469.
MacSnap Plus 2 *(MacPlus to 2MB Upgrade)* *Special* 249.
MacSnap Plus 2H *(MacPlus or SE to 2MB Upgrade w/1MB Chips)* *Special* 569.
MacSnap Toolkit *(Wrench, Case Cracker & Grounding Set)* 14.
Ehman Engineering
Available in Beige or Platinum
Ehman 800K External Disk Drive 195.
Iomega
Dual Cartridge Drives
Bernoulli Box 2-10MB w/SCSI 1419.
Bernoulli Box 2-20MB w/SCSI 1849.
10MB Cartridges *(3 Pack)* 159.
20MB Cartridges *(3 Pack)* 239.
Head Cleaning Kit 69.

Logic Arrays/ProAPP
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ProAPP 20S Hard Disk Subsystem *(MacPlus SCSI)* 649.
ProAPP 30S Hard Disk Subsystem *(MacPlus SCSI)* 789.
ProAPP 40S Hard Disk System *(Sub-30msec. Voice Coil Technology)* 1099.
MacMemory, Inc.
All MacMemory products carry a full two year warranty!
MaxPlus *(2MB Upgrade w/MaxRam/MaxPrint/MaxChill)* 329.
MaxPlus 2x4 *(2.5MB Upgrade with 1MB Chips-Hyperdrive Compatible)* 519.
MaxPack *(MaxPlus and MaxSave Bundle)* 379.
MaxPort *("SCSI" Port for your Mac 512K)* 139.
Mirror Technologies
Magnum 800K External Drive *(Available in Beige or Platinum)* 209.
Personal Computer Peripherals
Available in Beige or Platinum Color
MacBottom HD-21 *(20+Mb SCSI Hard Disk)* 859.
MacBottom HD-32 *(32Mb SCSI Hard Disk)* 995.
MacBottom HD-45 *(45Mb SCSI Hard Disk)* 1285.
MacBottom 20 *(20+Mb Serial Hard Disk for Mac 512k & MacPlus)* 859.
Rodime Systems Rodime 20 Plus Hard Disk *(MacPlus SCSI)* 759.
Western Automation Labs
Dasch External RAMdisk *(2048KB)* 429.

Modems

AST Research
High Quality Modems for the MacPlus, Mac SE, & Mac II
AST-1200 *(1200 Baud Modem)* 349.
AST-2400 *(2400 Baud Modem)* 489.
Hayes Microcomputing
Smartmodem 1200 299.
Smartmodem 1200 Mac w/Smartcom II & Cable 359.
Smartmodem 2400 449.
Transet 1000-128K 269.
Transet 1000-512K 359.
Transet 1000 Mac Accessory Kit 29.

InterBridge *(Connect Appletalk Networks)* 599.
Prometheus Promodem 1200 *(Hayes Compatible)* 239.
Promodem 2400 *(Hayes Compatible)* 299.
Mac Pack w/Procom M and Cable *(Specify Mac or MacPlus)* 49.
U.S. Robotics Courier 1200 *(Hayes Compatible)* 199.
Courier 2400 *(Hayes Compatible)* 349.
Courier 2400E *(Hayes Compatible)* 409.
Courier 9600 *(Hayes Compatible)* 729.

Digitizers

AST TurboScan *(Optically Scans & Digitizes at 300 Dots-Per-Inch)* Call
Impulse Impulse *(MacNifty)* Audio Digitizer V2.0 w/SoundCap 149.
Koala Technologies Corp.
MacVision *(Digitizer)* 175.
New Image Technology
Magic Digitizer *(Mac 128/512k or MacPlus Version)* 249.

MacScan *(High Speed Image Scanner at 300 DPI)* 1399.
Summagraphics
MacTablet 6x9 size 289.
MacTablet 12x12 size 379.
ThunderWare
Thunderscan V4.0 with Power Port *(Mac 512K, 512K Enhanced, MacPlus, and Macintosh SE)* 199.

Blank Media

Single Sided 3½" Diskettes
BASF 3½" SS/DD Disks *(box of 5)* 8.
Bulk *(Sony)* 3½" SS/DD Disks *(10)* 12.
Sony 3½" SS/DD Disks *(box of 10)* 14.
Centech 3½" SS/DD Color Disks *(box of 10)* 16.
Fuji 3½" SS/DD Disks *(box of 10)* 14.
Maxell 3½" SS/DD Disks *(box of 10)* 13.
Verbatim 3½" SS/DD Disks *(box of 10)* 13.
3M 3½" SS/DD Disks *(box of 10)* 14.
C.Itoh Color Disks SS/DD *(box of 10)* 22.

Double Sided 3½" Diskettes
BASF 3½" DS/DD Disks *(box of 5)* 9.
Bulk *(Sony)* 3½" DS/DD *(10)* 16.
Centech 3½" DS/DD Color Disks *(box of 10)* 19.
Sony 3½" DS/DD Disks *(box of 10)* 19.
Fuji 3½" DS/DD Disks *(box of 10)* 20.
Maxell 3½" DS/DD Disks *(box of 10)* 20.
Verbatim 3½" DS/DD Disks *(box of 10)* 20.
3M 3½" DS/DD Disks *(box of 10)* 21.
C.Itoh Color Disks DS/DD *(box of 10)* 25.

Accessories

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Cambridge Automation
Numeric Turbo 99.
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Emerald-Surge Suppressor-SP2 36.
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MacBuffer *1024K* 429.
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MacNifty Stereo Music System MNS-300 *(Dolby, Bass, Treble)* 99.
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Flip 'n' File/Micro 9.
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Kalmar Designs
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Kensington System Saver Mac *(Beige or Platinum)* 64.
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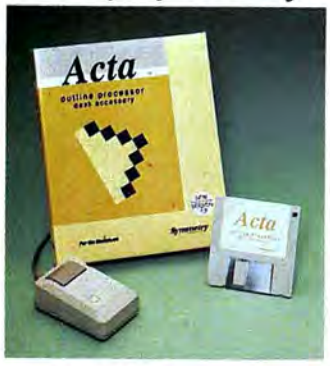

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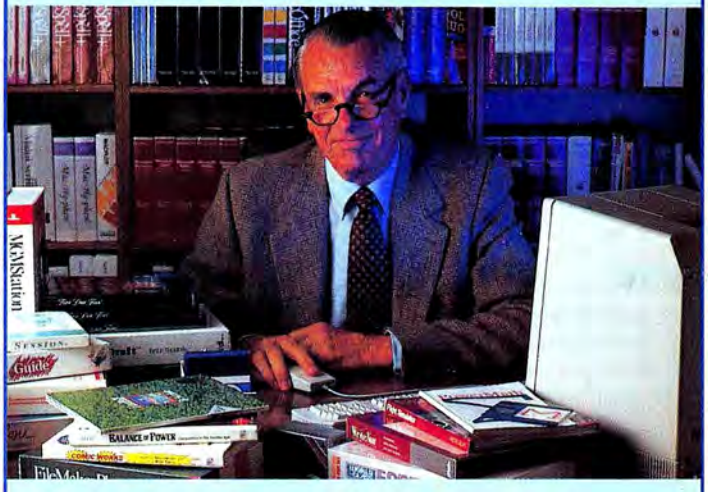

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by Michael D. Wesley

Are You a Mac-Aholic?

Addictions. Alcohol, drugs, tobacco, ambition, sex, gambling, coffee, chocolate, diet cola—these are all fairly common and well-recognized objects of compulsive use, overuse and abuse. You can see signs of a growing awareness of substance abuse all around you. Television ads exhort youth and adults alike to "Just Say No" to drinking, drugs and devil's food cake, urging that the best way to avoid the descent into addiction is never to start with something that is by nature addictive.

Very recently, a new addiction has appeared with startling vitality. People everywhere are becoming seriously addicted to a small, sometimes beige, sometimes gray box that makes funny little beeping and whirring sounds. Called Macintosh, the little box has computer people, middle managers and therapists alike scratching their heads in wonder.

Addiction to computers is not new. Programmers and engineers are often pictured (often wrongly, but stereotypes do persist) as obsessive people who spend days at a time staring at little screens with no regard for sleep, healthy eating or personal hygiene. But previously the disease was seen as being confined to a small group, already thought of by some elements of society as peculiar. Well, I can tell you that it's spreading to the mainstream and causing a considerable amount of concern as it does.

Have you fallen victim to the dread disease? Are you a Mac-aholic? Or, are you predisposed to Mac-aholism, on the verge of sacrificing friends, family and loyal pets to the cause of feeding your MacHabit? Fortunately, there is an early detection method that you can use in the privacy of your own home. Developed by a leading therapist in San Francisco, the following checklist can help you determine whether or not you are addicted to Macintosh.

THE HARD QUESTIONS

Please answer these questions honestly. If it helps, type them into your word processor or outliner, since people are less likely to lie to their Macintosh.

1. Do you have a bumper sticker displayed prominently on your vehicle that carries any of these messages:
   - "I ♥ my "
   - "My spouse, probably. My pet, maybe. My Macintosh, NEVER!"
   - "You'll take my Macintosh away from me the day you pry my cold, dead fingers from around the mouse."
2. Do you greet your Macintosh *before* acknowledging your spouse? Children? Boss? Co-workers? Your first morning cup of coffee?
3. When you argue with your (spouse, children, co-workers, first cup of coffee) do you pose the dreaded threat "Watch it, sucker, you can be replaced with a Macintosh"?
4. Do you find yourself sneaking away from gatherings of friends or family to perform exotic calculations on your personal finances?
5. Do you sit down at your Mac to play "one quick game of (insert name of

favorite game here)" and come to your senses later, only to discover that three and a half days have passed?
6. Have you removed all the silverware, utensils, tools and linens from the kitchen drawers and piled them haphazardly on the floor so you could have more space to store your disks?
7. Was a Macintosh the first accessory you had installed in your new car?
8. Have you forgotten how to write by hand, either in manuscript *or* cursive?
9. Did you take out a fourth mortgage on your house so you could be the first person in your (block, family, company) who owned a Macintosh II with a color monitor?
10. In case of fire or other disaster, would you put the life of your Macintosh before your own?

Bonus Question: Has the amount of time you spend at your Macintosh gradually increased to more than 16 hours a day?

WHAT'S THE SCORE?

If you answered "YES" to 5 or more of the above questions, you are a certified Mac-aholic. Wear your "I am a Mac-aholic" badge with pride.

A score of 3 to 5 indicates a definite predisposition to Mac-aholism, and chances are you will develop the disease within 6 months.

A score of 1 to 2 probably means you have had your Macintosh for less than two months.

If you answered "NO" to all 11 questions, you are probably an IBM PC user who picked up this magazine by mistake and decided to read it anyway to kill time.

Truthfully, it is amazing to watch people take to the Macintosh and become slightly (or totally) obsessed. A friend recently told me "I don't mind working 16 hours a day when I'm working on the Mac because it's so much FUN!" Some studies I can't quote because I don't remember (oh, lord, my psych professors would shoot me for that) have indicated that one of the greatest benefits to businesses that install Macs is a staff of happier, more hard-working and more productive people.

So go ahead. Indulge yourself. This addiction has pretty positive results.

QUARK'S QUIRKS

Quark *XPress* is a great product. I love it. I can do amazing things with it, even after a short learning time, and with no particular talent. It makes a lot of things easy that other page layout programs either couldn't do at all, or made you work your buns off to accomplish. I love *XPress*.

I *hate* the copy protection. *XPress* lets you copy the program to a floppy or hard disk by dragging the icon over, but requires the insertion of the master as a key disk before the copy will work. Key disks are a royal pain, especially if you're on a network. Perhaps understanding this, Quark includes floppy and hard disk installer programs that let you make 3 legal copies in each medium. Mine hung. The floppy installer hung every time I tried it, and the hard disk installer hung the one and only time I tried it. (I wasn't about to risk a second attempt.)

I called Quark technical support and reached a very helpful and friendly

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young man who apologized and quietly XPressed his wish that the copy protection would be removed or altered because it really wasn't his job to support the copy protection, but most of the calls he received were about—guess what? He sent me a revised version of the installer, with improved dialogs. I tried it. I got an interesting message—"Internal Hard Disk Installer error—#127. Please report this error." This dialog was followed, not surprisingly, by a system crash, and any attempt to boot the application that claimed to reside on my hard disk at this point met with similar results.

As a diehard Mac user with some experience in such matters, I don't get upset, I just get angry. But what about someone who isn't used to the Macintosh yet, or who has limited experience with it? If I were in that position and went through all that *XPress* has put me through, I think I'd panic. I'd throw caution to the wind, lean out the window and scream bloody murder.

I still use *XPress,* because I love the program. But I hate the copy protection, and I wish that lots of users, reviewers and concerned citizens would let Quark know that this kind of problem really can't be tolerated.

IN YET ANOTHER DIRECTION

I don't use a data base (software such as *Reflex, Omnis 3* or *Helix,* etc., that lets you build a catalog of information). I do, however, create data bases (bodies of collected information) of all sorts. I keep phone logs and contact lists and To Do lists in *MORE*. I have product directories that I compiled for *MacUser* supplements in *MacWrite* documents. I have the offensive and defensive formations for the PeeWee football team I coach in *MacDraw*.

A data base of some kind forms the core of virtually everything we do with computers, whether the application is *called* a data base or a spreadsheet or a game or even (let's really get crazed), a Protracted Operational Relative Navigational Orthographic design program. In any case, you are creating a body of collected data that you act upon.

This question of data bases, spaced out or otherwise, is actually a mere introduction to a much longer, but very interesting discussion of learning and thinking processes, accounting software and other dedicated relational data bases, the nature of information processing and the empowerment of the individual.

Unfortunately, I've run out of space in this month's data base, so I leave you to mull over the idea.

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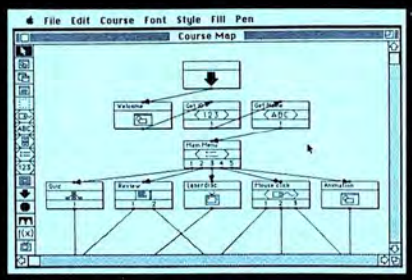

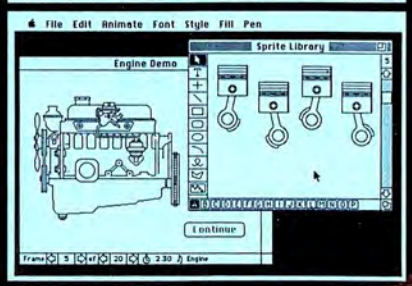

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by Doug Clapp

Scan Scam Canned

What DTP needs it ain't got yet. (Grammar aside, doesn't "DTP" make you cringe? Me too.)

Anyway. A while back, I needed to get text on paper into text in text files. About 350K of text files—book length. Typing it in would have been a Herculean task. Worse, it needed to be flawless on disk. Absolutely not a single typo.

Typists are expensive, and even the best typists make mistakes. And this particular text was peculiar; a speller wouldn't know most of the words.

What to do? Simple: Scan it in. Run the pages through an optical character reader—a text scanner. Fast and easy.

Since I don't have a scanner, I let my fingers walk through the yellow pages. Go digits. Sometime later, I landed on Xerox. If anybody would have an optical character reader, Xerox would.

And they did! What's more, they'd rent me one. Great.

$7,000 a month, minimum lease of about two years, as I remember. After I scraped myself off the floor, I gasped for awhile at the sales rep and hung up.

Next, I found an ad for the Abaton scanner. It scans graphics. It reads text. It reads text! And it works with Macintosh!

Cool.

So I called them up and got a review unit for 2 weeks. Here's the review: It stinks.

Well, it's okay for scanning graphics. Scanning graphics is easy. If you only need to scan graphics, the Abaton is okay. Cumbersome and ugly, but okay.

But forget it for reading text.

Here's what it can do. Barely. It only reads monospaced text, in a few sizes. Even that it does poorly, using a program that is slow, awful and resides on a 5¼ inch disk in a tank-like external drive.

Monaco is a monospaced font; each letter takes up an equal width on a line. But nothing, folks, in the real world, is monospaced.

And here I must recount what a tech person at Abaton said. He said the software was in its early stages, and that a better version would be shipped "soon."

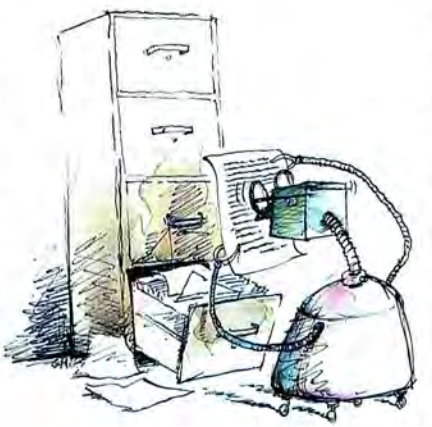
That's all well and good. I hope they do ship something better, fast. But let's remember that Abaton has been heralding this product, and actually selling units that they say will read text. And it just isn't so, unless you accept a definition of "reading text" that's so narrow as to be useless.

So I sent the unit back.

Here's the end of the story: I gave up.

Actually, that was my second burn with text readers. The first was with Oberon International's Omni-Reader. I saw the Omni-Reader at a Mac show. The man in the booth gave an impressive demo: put the sheet here, run this dingus across the line and—zwap—it's shot into the computer, as a nice friendly text file.

It looked great. But in reality (that pesky reality thing again) it was iffy at best, pathetically useless more often.



None of this is monumentally unusual. Lots of products are awful. Advertising claims, given their source, are intrinsically suspect. That's what editorial types are for: to smite the wicked and praise the worthy.

But unfortunately, optical character readers are something we need. And desktop publishing needs them desperately.

Apple, IBM and the other big boys also have a vested interest in optical character readers—though they may not know it. OCRs would sell millions of computers.

Consider this. A small insurance company. They don't have a computer, but they'd like one. Their problem with computerizing, though, is against that wall: file cabinets.

File cabinets full of folders containing sheet after sheet of typewritten information. Who's going to type all that into a computer? Not me. Not you.

It's a problem. But give me an optical character reader—one the size of a personal copier, say—and I could go to Anytown, USA and sell computer after computer. Up one side of the street and down the other.

So where are they?

They're around. But they're very, very expensive. The best are made by Kurzwiel. How much? Don't ask.

They're rare and expensive because figuring out which letter is what is an incredibly hard thing to do.

People have worked on this for decades. And not much progress has been made. It's one of those problems that looks easy, but isn't. In fact, the more you study the problem, the harder it gets.

But it looks seductively do-able. That's a trap then even Don Knuth, the Obi-Wan of computerdom, fell into. He speculated once, as I remember, that mathematics could be applied to the identification of letters.

This provoked a blast from Douglas Hofstader, who explained, marvelously and wittily, why "it can't be done, Jack. Uh-uh."

You can read about it in Hofstader's book *Metamagical Themas*. A great book. Confrontations between people like Knuth and Hofstader are thunder from Olympus. I wanna be Doug Hofstader when I grow up.

My theory of "How to optically read characters" is this: Make a guess. Do all the normal stuff, like tracing the edge of characters and such, but also take into account placement of the character within the word, and the placement of words within the sentences.

Some characters occur more frequently when following other characters. Same with words. If you find a "t," for example, the next letter is likely to be an "h" or a vowel. That information should be used to aid character recognition. (And a three letter word following "of" will often be "the" and so on.)

Granted, this is processor intensive. You're not only tracing characters—a computational blockbuster in itself—but also juggling probabilities.

But processors are cheap and good programmers are legion.

Wouldn't Aldus be a good choice for this one? Aldus could make it, write the code and price it at $1,695. Put the smarts on a Mac II card. The actual scanner could then be small.

The desktop publishing market would explode.

And I could get my stuff on disk, where it belongs.

GARY HOVLAND

Meeting Notes:

The brainstorming session became the

Want to check over the most recent revisions? They're marked for you.

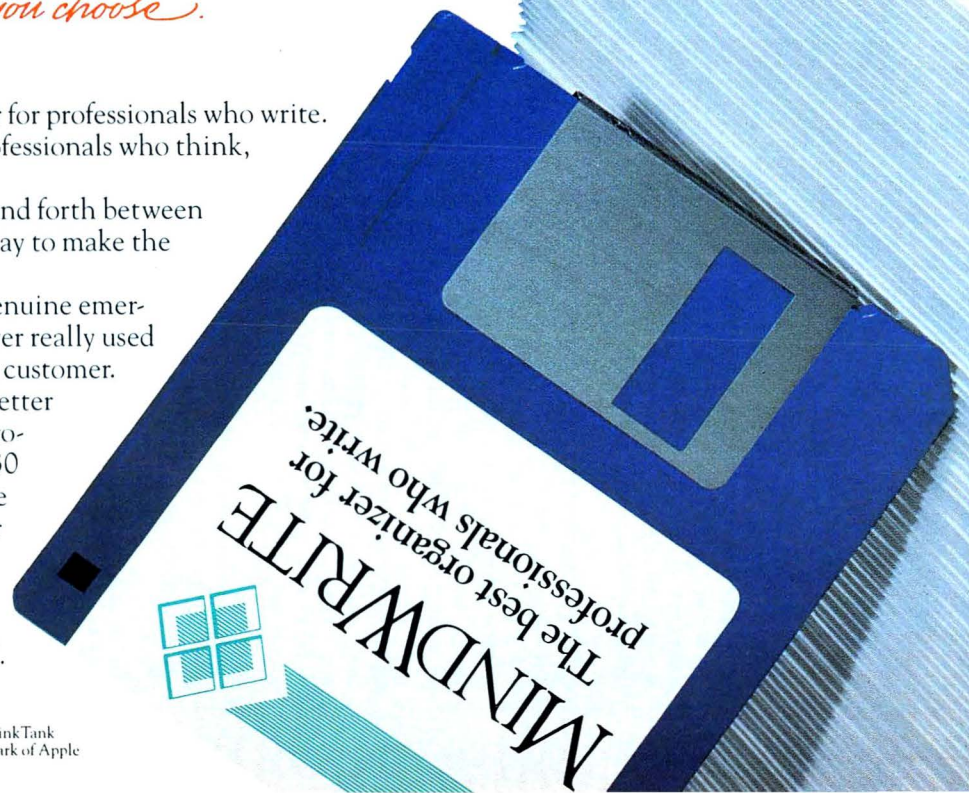
Open many documents—in as many windows as your Mac's memory allows.

Keep this section under 1500 words with Automatic Word Count.

Outline entries are word processing paragraphs whenever you choose.

Insert MacWrite™ or ThinkTank™ files.

You accidentally cut this section? Don't worry, MindWrite's accumulating clipboard saved it — and your neck.



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The best word processor for professionals who think, combine, reorganize and rewrite.

The easiest way to move back and forth between outlining and writing. The fastest way to make the most changes.

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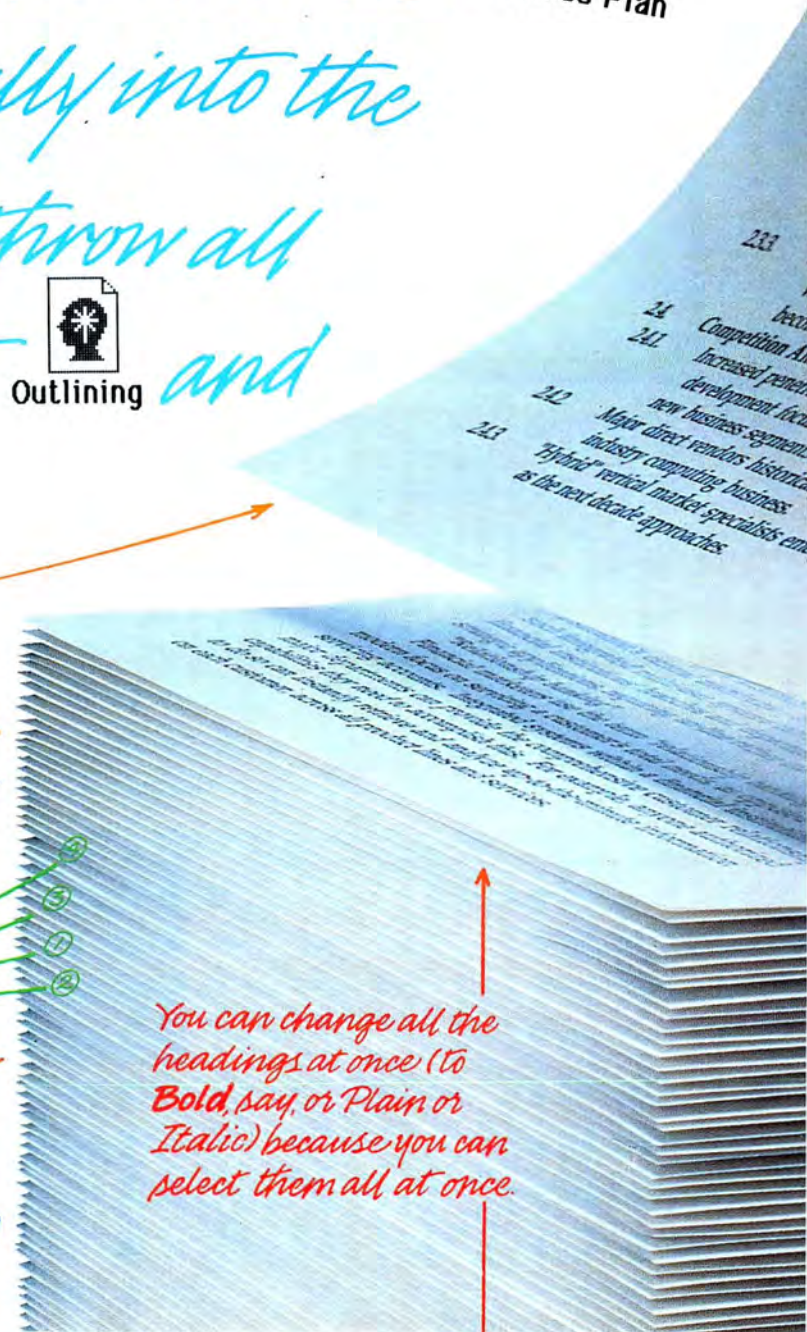
The Outline became the Outline. The Meeting Notes became the Proposal. The Proposal became the Business Plan. Each evolved naturally into the next. With MINDWRITE™ you can throw all your preconceptions about Outlining and into the Trash the Word Processing.

Switch between outline and document in two clicks of the mouse. Even keep them side-by-side in separate windows.

Instantly click from here to here—no need to scroll or recall the page number.

To reorganize, just click on items in the new order. Numbered paragraphs? They're automatically renumbered.

No tedious cutting and pasting—just drag whole sections where you want them.



You can change all the headings at once (to **Bold**, say, or Plain or *Italic*) because you can select them all at once.

QUICK CLICKS

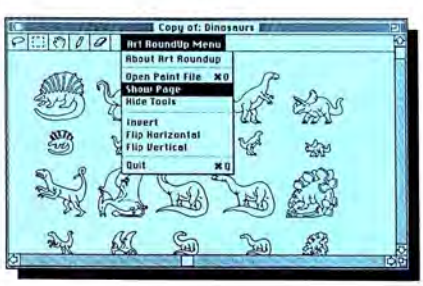
Quick Clicks are short reviews of released products, not beta releases, pre-release products or vaporware. If it appears here, it is available commercially. Products reviewed here will often be the subject of a longer review in a future issue.

WetPaint ♜♜♜♜♜

List Prices: Volume 1 or 2 (3 disks each): $39 each; both Volumes (6 disks): $59. Also available in *PictureBase* format for $15 extra per volume. Published by Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. (818) 349-2758. Not copy protected.

As if a three-disk set of good, useful clip art weren't enough...as if two three-disk sets of good, useful clip art weren't enough...as if the option of getting either or both sets in *PictureBase* format weren't enough...*WetPaint* from Dubl-Click Software also provides the best art-grabbing desk accessory to date. It would make the package worth the price even if the artwork were only second rate, which it's not.

First, the clip art. Each disk is packed with high-quality graphics for a variety of situations. The work is artistic, but not at the expense of usefulness: you won't find full-page egrets or presidential hopefuls here. What you will find are lots of small icons in various categories, pages of interesting borders, animals enough for a small zoo and the perfect blend of art, whimsy and practicality throughout. If you've been collecting Mac art for a while, you may be disappointed to find that some of *WetPaint*'s art has been recycled from Miles Computing's *Mac the Knife;* but take that as a sign of quality, since *Mac the Knife* was so good.



The basic *WetPaint* volumes are filled with *FullPaint* documents that are *MacPaint* compatible. They're also available in *PictureBase* format, so if you have *PictureBase*, you can use the *PB Retriever* desk accessory to search through the disks for the pictures you need. (Too bad you can't get the *PB Retriever* separately; it's not included with the *WetPaint* disks, and is only available with Symmetry's *PictureBase*.)

The icing on the cake, though, is the *Art Roundup* desk accessory included with each volume of *WetPaint*. I couldn't have survived without *Art Grabber* the last 2 years, but it's just been knocked out of my Apple menu. *Art Roundup* lets you open any *MacPaint*-compatible document at any time, and copy part or all of it to the Clipboard so you can paste it into the document for whatever application you happen to be running. That alone is convenient, but *Art Grabber* can do that, too. *Art Roundup*'s additions are:

- A lasso, in addition to the selection rectangle, for selecting odd shapes.
- An eraser and a pencil for minor touchups, right in the *Roundup* window.
- A Grabber hand as an alternative to scrolling through the full document.
- Invert, Flip Vertical and Flip Horizontal options for selections in the window.

Art Roundup also includes a Show Page option, and lots of fine details like shortcuts to the Grabber hand and for selecting the entire window or page.

The documentation for *WetPaint* was obviously written before *Art Roundup* was completed, so there are some discrepancies that are pretty obvious: *Roundup*'s menu, for instance, is an integral part of its window rather than part of the Mac's menu bar. That poses no problem, but the documentation does gloss over an important fact: the Open command opens only a *copy* of the document you select, so the changes you make in the *Roundup* window do not affect the original.

WetPaint includes another desk accessory, *Pattern Mover,* that lets you open, change, create and save patterns. It's well done, but of limited usefulness. Or, more accurately, it will be useful to a limited number of people. It can, for instance, save patterns as resources (and, as the documentation points out, if you don't understand that, you don't need to know what it means). Pattern creation is a simple FatBits affair with options like horizontal and vertical mirrors, and random pattern generation.

The *WetPaint* art is almost a must for clip art users; the *Art Roundup* desk accessory is a necessity.—*Sharon Zardetto Aker*

Space Quest ♜♜♜♜

List Price $49.95. Published by Sierra On-Line, Inc., PO Box 485, Coarsegold, CA 93614. (209) 683-6858. Runs on any Mac. Copy protected.

All you wanted was a short snooze to break the pace from one exciting custodial chore to another. So you stole away for a few hours in a janitorial closet aboard the spacelab *Arcada*. Its mission accomplished, the *Arcada* heads home with a working prototype of a Star Generator. The Earnon System will be saved by the kindling of a new star to replace their dying Sun.

Or so you thought. Instead, during your slumber, the *Arcada* has been attacked and boarded by the Sariens, space pirates banished centuries ago from Earnon, but still holding a grudge. Emerging from the closet, you discover you are the last survivor on a ship about to self-destruct. Can you save the Earnon System? Can you prevent the Sariens from

PRODUCT PHOTOS BY GARY BUSS

Borland's new SideKick®, Release 2.0, gives you MacPlan™ and a whole new Outlook™

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Outlook and MacPlan work in perfect sync with each other and *while you run other programs!*

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It helps you structure what you want to say, add, delete, change the order, change your mind, whatever.

Outlook lets you incorporate both text and graphics into your outlines and allows you to work on several different outlines at the same time.

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>
> *Doug Clapp, MacUser* *"*

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Upgrade Now! If you are one of the thousands of SideKick users, just send us your original master disk back with a check for $34.95, and we'll rush you a brand new SideKick, Release 2.0, complete with manual.

Minimum system requirements:
Any Macintosh with at least 512K.

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QUICK CLICKS

exploiting the Star Generator for their own purposes? First things first. Can you survive long enough to get off the *Arcada* before it explodes?

Space Quest, from Sierra On-Line, is a three-dimensional, animated, interactive adventure. Players assume the role of erstwhile janitor Roger Wilco, controlling his movement by mouse or keyboard. Actions may be performed from the menu bar, the icons on the left side of the screen or command key sequences. Also, the text entry window opens automatically at the first "normal" keystroke. Game sound can be muted, animation may be accelerated or slowed, and on-screen help is available. Games in progress may be saved for later resumption.

Although you can back up the game in the *Finder* (or transfer it to a hard disk), the program will ask for the "master" at boot-up. Copy protection of game disks is considered essential by the industry, but I find it inconvenient. I like to play with back-ups and store my originals in safety.

The graphics, though good, could be better. Having played this game on other computers, I really missed the color screens. But my criticism stems more from a certain lack of crispness and contrast. Sometimes our hero's head

blends into the background.

Space Quest is a long elaborate puzzle. Escaping from the *Arcada* is only the beginning. Beyond lie the unsavory characters on the surface of the planet Kerona and the exploration of an underground city that is home to a highly evolved alien race. Ultimately, our hero will have to tangle with the Sariens aboard their ship, *The Deltaur.* And, since a player's actions are combined with random events, there is more than one path to the resolution of the game. So having saved Earnon once, you can try to do it again.

Space Quest provides enough adventure to keep experienced players occupied, yet it remains playable enough for novices. It is challenging without being daunting.—*Carlos Domingo Martinez*

PARTNER

List Price: $50. Distributed by Arts & Farces, 316 South Fourth Street, Stillwater, MN 55082. (612) 430-2944. Requires 512K+, 100% Hayes compatible modem. Version 1.0. Not copy protected.

First aid classes teach the idea of a buddy system, so if one person gets into trouble the other can help out. *Partner* is a fascinating utility that duplicates the buddy system for your Macintosh.

It's a telecommunications desk accessory that lets you remotely control nearly any application. Once both you and a buddy have installed *Partner* and established a connection between your computers, it allows one Macintosh keyboard and mouse to perform the same action on both machines at the same time.

You install the *Partner* desk accessory into the *System* file with *Font/DA Mover.* Selecting *Partner* from the Apple menu adds << >> on the right end of the menu bar. *Partner*'s pull-down menu allows you to select the baud rate (300 to 9600), dial or answer the telephone or switch to and from a "chat" mode.

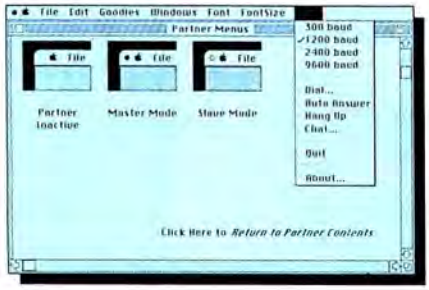
A connection is established either directly, or, more likely, via a modem that is fully Hayes compatible. If you have a direct connection, *Partner* activates as soon as both computers have *Partner* selected. With modems over a standard telephone line, one person chooses Auto Answer, while the other chooses Dial.

Partner has three modes: master, slave and chat. The master, identified by a solid circle in the left corner of the menu bar, controls the keyboard. The slave, indicated by a hollow circle, gains control by moving the mouse when the master stops typing or using his mouse, at which time the two machines can exchange roles. Either person can select the chat mode from the *Partner* menu, which allows the partners to carry on a conversation in a text window that sits on top of the open application window.

The Arts & Farces people created this program out of necessity—they needed a way to work interactively with their clients. Actually, that's not entirely true—they created it to play games over the modem, but an architect client saw it and suggested using it to edit drawings interactively. It works similarly with a word processor, allowing two people in distant locations to edit a document together.

It is quite impressive to watch someone else controlling your Macintosh. But, as happens with any two partners, there are occasional conflicts. You need to remember that what you are doing on the keyboard of *your* Mac could conflict with what is being performed on the *other* Mac. For instance, you may load a word processing document that occupies the second position from the top in your dialog window. This action will also open the document that occupies the same physical position on your partner's machine. But the second file in the dialog window on the other Mac probably won't be the very same file as yours, and might very easily be a picture or data base file. Crash.

Similar problems arise using desk accessories. Choosing *Art Grabber* to examine a picture file on my Mac might select a desk accessory that does something unpleasant on my partner's machine! Horrors! Make *sure* you both start from scratch in an application when *Partner* is opened. Both of you should close the blank document that comes up and let the master control opening and naming operations. Use desk accessories or fonts very cautiously, unless the two Macs have identical *System* files. Also be sure to save files only at the root level, so



as to avoid saving onto or into the wrong place on your partner's disk.

There are other problems—like closing an application without saving a file—that will almost always lead to disk crashes. And be especially careful running *Partner* with *anything* running in the background. These problems are why the rating, which would be much higher with a more stable product, is so low.

The only documentation for version 1.0 is presented as a Guide Envelope: you hold down the mouse button over topic words and a related window or text pops up. Envelopes make it easy to read the sections you want without scrolling through pages, but I miss the option to print the documentation!

By the time you read this, version 1.1

PRODUCT PHOTOS BY GARY BUSS

"Buying the wrong image scanner split up our partnership."

We weren't even in business 24 hours when it happened. My partner, Elliot, bought a page scanner that would divide our partnership, literally.

It happened when Elliot couldn't edit the full picture on the Macintosh™ in one piece. There he was, tediously switching back and forth between the scanner program and paint program, trying to edit a portion at a time.

Finally, in a fit of frustration he roared that the picture wasn't big enough for the two of us and one would have to go.

So I went. Straight to my Apple® dealer and found a scanner designed especially for graphic applications, the AST TurboScan.™

You see, TurboScan edits full-page, 300 dpi images all at once. In fact, it can display three documents on one screen. Which is handy for comparing images at different scan settings and pasting together the preferred portions of each.

And its full-featured graphic editor provides 14 paint options for full-page editing, such as selection rectangle, pencil, hand, paint brush, paint bucket, text, line, eraser and more. Plus, eight fonts in sizes from 7 to 72 points, 39 fill and border patterns and five viewing options. I bought it immediately.

By the time I got back to the office, I found Elliot's final attempt in the trash, along with the scanner. The flyer was a fiasco, but our partnership was saved. Elliot was ready to try the AST TurboScan.

To keep your partnership in one piece, ask for AST TurboScan. Call AST today to find your nearest AST-authorized Apple dealer: **(714) 553-0340.** BBS: (714) 660-9175. FAX: (714) 660-8063.

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TurboScan keeps the partnership together by editing the entire image at once.

QUICK CLICKS

should be released, which Arts and Farces claims will allow you to transfer files from within an application, so you can send a file, then interactively edit it. I hope they also include the ability to transfer the contents of the Clipboard so you can remotely cut and paste, and at least provide the hooks to work with modems that are not Hayes compatible. All registered owners of version 1.0 will receive the update plus printed and bound documentation free of charge.

Whether used as a teaching tool, or just for fun, *Partner* will make you laugh—and it can certainly make you cry—but once you watch it in action, you might willingly kiss fifty bucks goodbye.—*CC*

PICTUREBASE 1.2 ★★★★½

List Price: $69.95. Published by Symmetry Corporation, 761 E. University Drive, Mesa, AZ 85203. (800) 624-2485. (602) 844-2199. Requires 512K+. Not copy protected.

"Where's my Mona Lisa? I know it's in this folder somewhere. Click... Click... Scroll... Scroll. Help!!!" *PictureBase* to the rescue!

PictureBase 1.2 is the newest version of the already classic *PictureBase*, best described by its subtitle, "Art Management System." *PictureBase* 1.2 has some improvements over earlier versions that make it an even better tool for organizing your graphic clip art into an efficient, effective data base.

If you are not familiar with *PictureBase*, it's a program that lets you create and maintain a data base of graphic images. Images are grouped together in libraries by related topic, so you might have a library of animals, a library of holiday images, etc. Depending on just how specific you want to get, you may want a library of just "TREES" or the more general "LANDSCAPES."

The key to *PictureBase*'s organizational functions is the Info window, where you store information relating to the graphic along with each of your library pages. This information is used to help you locate graphics at a later time, and includes things such as a title and descriptive keywords. There also is a place for notes to help you remember specific details.

PictureBase does more than simply log graphics files, as valuable as that function is. It also helps you manipulate graphics because you can store or retrieve files at full size, 50% of actual size or 25% of actual size. This makes it possible to cut and paste full page pictures very easily.

Included in the package is a utility called the *PB Retriever* desk accessory. Once your images are set up in library files they cannot be accessed as *MacPaint* documents. To find a picture, *PB Retriever* can search a single library or all the libraries in the Catalog window through a Find dialog, using either the title or the keywords. *PB Retriever* is not merely a complement, it's a necessity.

New features and improvements include speeding up the cutting and pasting process. This was done by adding a new Apple menu selection called Preferences. The Preferences dialog allows you to specify which library folder *PictureBase* 1.2 will default to so you don't have to page through several layers of non-*PictureBase* folders to find where your libraries are stored. This is a great time-saver when working with hard disks, and almost a necessity when you have lots of graphics stored. Another time-saver is the ability to designate how often *PictureBase* does a complete update of your library changes. This is done by changing the default setting in the update box.

A new utility lets you convert Scrapbook files into *PictureBase* library files. This conversion makes copies of all the graphics in your chosen Scrapbook file while leaving the original Scrapbook intact. You simply add the information relating to each picture without having to copy and paste every single one.

A key area for *PictureBase* use, it would seem, is desktop publishing, yet one feature lacking in the earlier versions was the ability to work with the Place... command found in *PageMaker*. This has been changed in version 1.2 so you can now place a graphic directly into *PageMaker* 2.0, bypassing the usual Clipboard and paste routine.

PictureBase 1.2 has improved print capabilities. Previously, when printing out the contents of a library file, the pictures were only as clean as the bit-map image you saw on the screen. This has been corrected. Additional keyboard command equivalents have also been added to give greater control over the program directly from the keyboard.

The manual is excellent, with very clear, easy to follow directions and explanations.

Graphics play a major part of the Mac's environment. *PictureBase* has created a standard for graphic data bases. Version 1.2 adds welcome enhancements to an already outstanding product.—*Jimmie Young*

THE PRINT SHOP ★★★

List Price: $79.95. Published by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101. (415) 479-1170. Copy protected.

Designing greeting cards using a Macintosh graphics program reminds me of taking the SATs. (Okay, they were a long time ago, but I have a very good memory.) You figure out what's going to print where on a page that's going to be folded twice, what has to be printed upside down, and how to center something on what will be the inside of the card—well, it's easier to go Hallmark. Another pain-in-the-mouse design problem is a full page border. By the time you click, flip and Option-copy your way around the perimeter of a document, with a fair chance that the design won't match up at the ends anyway, you've convinced yourself that the announcement doesn't need a border, anyway.

The Print Shop was a popular program on the Apple II, and it's been around for the Mac for a while. Some people may revel in the freedom of design-your-own-anything graphics programs, but a lot of us can be more productive in the more controlled atmosphere of *The Print Shop*. All you have to do is select your category: Greeting Card, Announcement, Stationery or Banner. Then it's one from column A, one from column B, a little editing, and print. For greeting cards, you choose a border, type some text and pick some graphics for the cover and inside of the card. You can get a Show-Page overview of the project at anytime.

PRODUCT PHOTOS BY GARY BUSS

"I thought I was hearing things when he said speed alone didn't make a fast drive."

It didn't make sense. I asked my Apple® dealer for a fast drive for my Macintosh.™ And he responded, "There are fast drives and there are fAST™ drives."

"Benchmark tests prove fAST drives are fast all right. But even more, they're loaded with standard features other manufacturers charge as expensive options."

He pointed out that only a fAST drive comes equipped with extras that let you come out ahead. Standard features like DataVault,™ AST's proprietary utility software that backs up my data to tape or floppies in volume or incremental mode. And a software print spooler that allows me to run applications while my LaserWriter® prints documents in the background.

Another standard feature of every fAST drive is its advanced disk optimizer that reorganizes data on my drive to conserve valuable storage space and facilitate lightning-fast file access.

And contrary to popular belief, most drives don't include cabling to connect a drive to a Macintosh or another SCSI device. AST does, and again, free of charge.

Of course, the greatest extra is AST's track record for quality and reliability. Which, when added together with AST's other fAST features, points to one very certain conclusion: When the time comes to buy a drive, make sure it's fAST.

I didn't have to waste time tracking down the extras.

To learn more about AST's fAST family, call **(714) 553-0340,** BBS: (714) 660-9175. FAX: (714) 660-8063. Or visit your local AST-authorized dealer today.

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QUICK CLICKS

Memorandum will grow on you. It makes annotating documents and jotting down ideas so painless that it could soon seem indispensable.—*Carlos Domingo Martinez*

SHADOWGATE ★★★★½

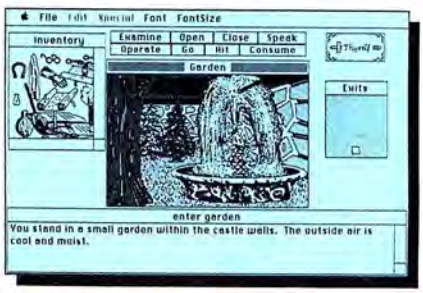
List Price: $49.95. Published by Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (800) 221-9884. Requires 512K+. Copy protected.

You want graphics? Boy, has *Shadowgate* got graphics. You want adventure? Well, *Shadowgate* has got that, too—and lots more besides. This new adventure game comes to us from the same people that brought us those great graphic adventures *Déjà Vu* and *Uninvited*. In keeping with the tradition, *Shadowgate* is one of the most exciting games around.

The premise of *Shadowgate* is simple enough. The world as you know it is being threatened by an evil warlock. (Where have you heard this before?) The prophecy says that the warlock will raise the Behemoth (the most deadly of all titans) from the earth, and darken our world forever. As seed of prophecy, you are the only one who can save the world.

The wizard Larkmir magically transports you to the front of the castle Shadowgate, where the evil warlock resides. Equipped only with a lighted torch you open the door (it creaks) and hope for the best. With a little help from the instructions you're on your way to saving the world from doom.

Castle Shadowgate is a typical castle, fully stocked with the assorted trolls, dragons, skeletons, goblins and rats. One thing you don't have to worry about is the rats, they're taken care of by realistically screeching cats. The castle is an endless maze of doors, secret passageways and traps. As in any other castle there's always something lurking around the corner. One wrong move and you are a goner.



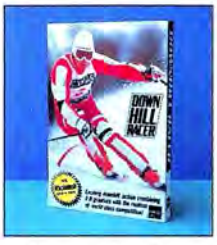
The most important thing to remember is to save your game. Saving your game is not just efficient, it's downright necessary. Just forget to have a fresh torch handy (stumbling in the darkness and dying is not fun) or pick up the wrong thing in the dragon's lair, and it's all over for you. Instead of laboriously trekking your way back through already conquered hallways, simply use a saved game and pick up where you left off.

Possibly the only thing worse than not saving your game is saving your game. Especially if it makes you over-confident. After seemingly endless hours of play, you think the end is finally in sight. It occurs to you that the impossible might be possible. You realize that the magical scroll you so hastily used and threw away is the key to getting past the unscrupulous gargoyles. Saved games are no help at all in this case—unless you just happened to save before wasting the scroll.

This game is good, real good. It has every thing a great graphic adventure game should have; great graphics, great sound, great adventure. What's not great? Not being able to choose your sex, for one thing. At the end of the game, after you have fought off all kinds of unthinkable horror, your reward is the hand of the king's daughter. Not the greatest reward (in my case, anyway) for saving the world from evil.

This is no game for a novice adventurer. Without the hints book I would not have survived to write this.—*JH*

DOWN HILL RACER ★★★★



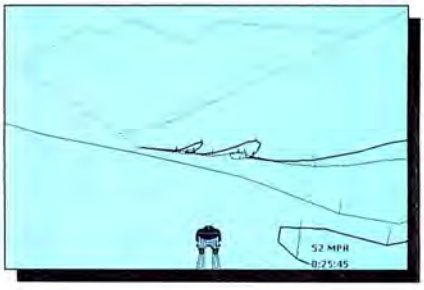
List Price: $49.95. Published by Miles Computing, Inc., 7741 Alabama Ave., Suite 2, Canoga Park, CA 91304. (818) 341-1411. Requires 512K+. Copy protected.

Down Hill Racer is a game of sheer skill. Steer your racer persona down one of four courses and see if you can beat the best time. The courses range from simple to hard to nerve-racking. You can play at four skill levels also: beginner, intermediate, advanced and expert. The skill levels have much more effect on your ultimate time and success than any other factor.

There are three racers to choose from. All have somewhat different characteristics, but none is superior in every situation and at all skill levels. Choose whichever name appeals most to you. In any event, you'll have the opportunity to enter your own name on the high scores boards (there's one for each course) if you manage to earn a place there.

There is a fourth persona, Otto Mation. He's good, real good. And he skis by himself. Watch Otto ski a course before you try it. He'll show you the right way down. Pay particular attention to his positioning on the course and how he sets himself for jumps, If you can beat Otto (it is possible), you're getting good.

The graphics are excellent and the absence of color is not a drawback since the real environment is primarily white. Animation is superb. The game also has a full complement of sounds, both comments and well-integrated background noises. Unfortunately, if you're playing



on a 512K Mac you won't hear them. A full megabyte (or more) is required for full sound.

The game plays well on an SE running *System* 4.1 despite the publisher's warning to always boot the actual copy-protected master game disk. It also has no problems (except the lack of sound) on a 512K machine with the old (64K) ROM. I used a trackball and Mac Plus and ADB (SE) mice to play it. Somewhat to my surprise, all worked well.

One truly annoying feature is the way the game quits. It asks you to insert another disk and then reboots the machine. That is no fun if you have a hard disk. Surely the publisher doesn't think that only the hard diskless among us play games?

One of the things I really like about *Down Hill Racer* is that at its simplest level anyone (that essentially means me) can actually get down a course. The time might not be competitive, but you'll be able hear the roar of the crowd (and see them jump around) that is the reward for crossing the finish line. *Down Hill Racer* may not be the greatest simulation, but it's a fine way to kill some computer time.—*SB*

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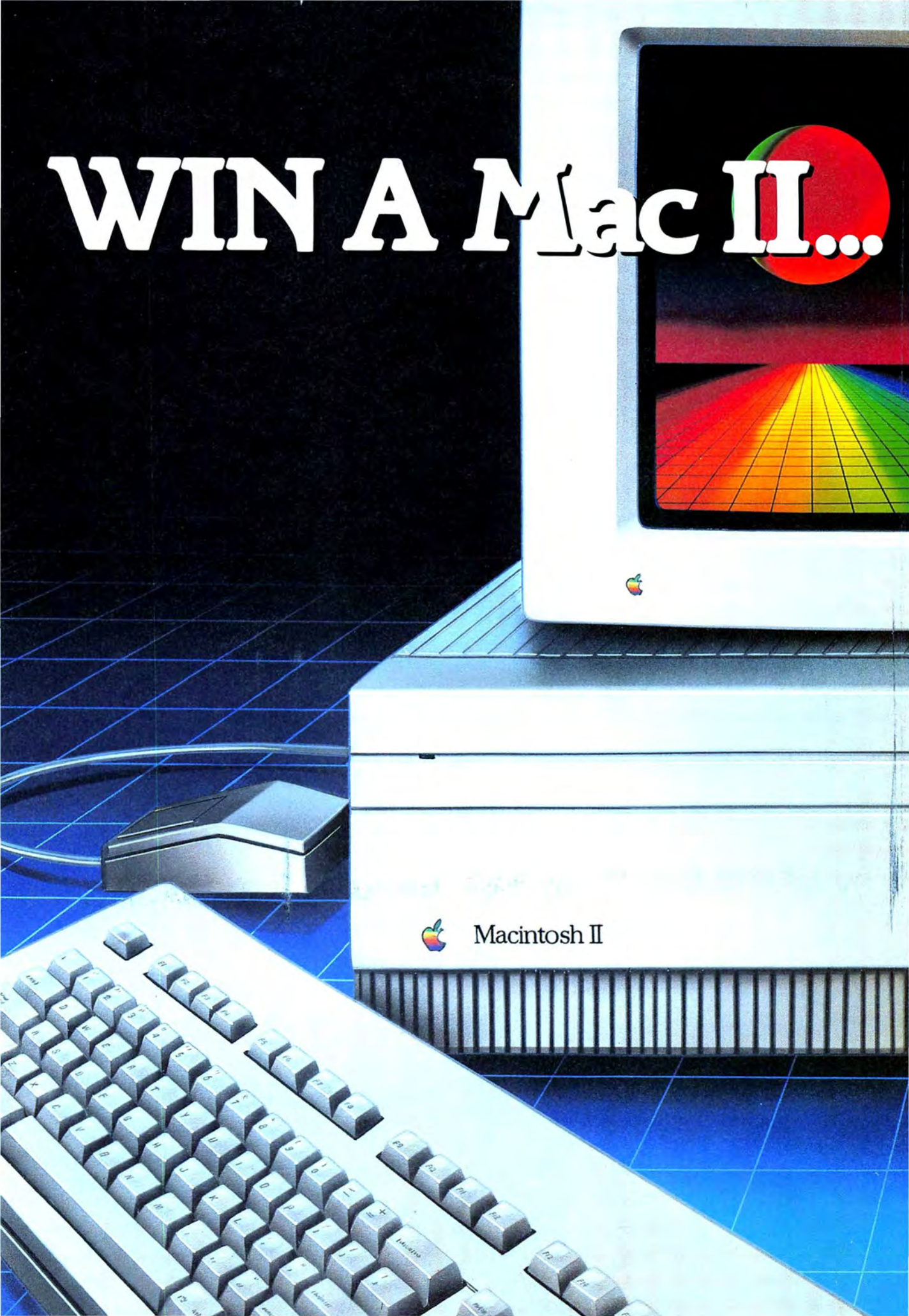

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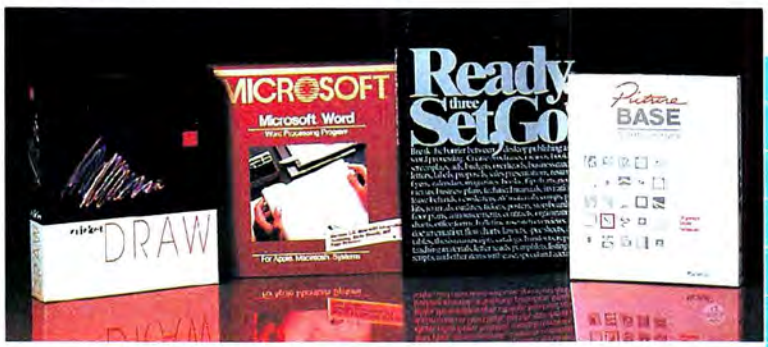

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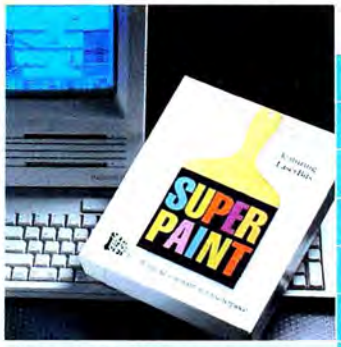

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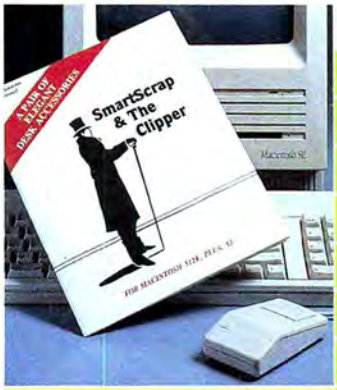

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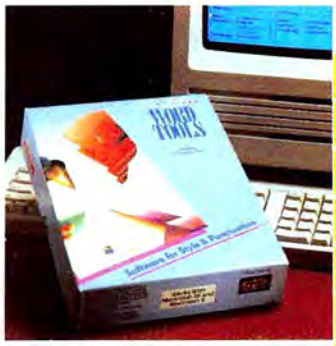

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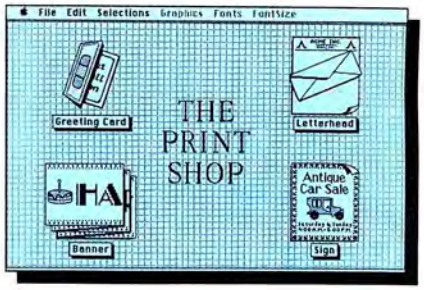
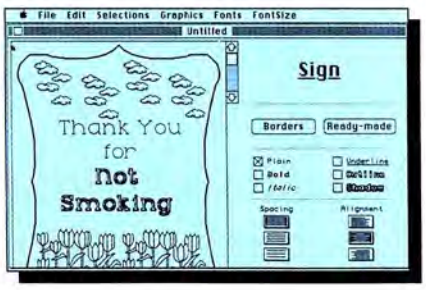


Text can be formatted for fonts, sizes and styles. Graphics can be taken from *The Print Shop* library, copied directly from a *MacPaint* document, or imported from anywhere via the Clipboard. The graphics can be edited in the Editor, and placed on the design in the Layout mode.

The Print Shop's graphics are in special libraries that can be accessed by the program. You can turn any of the graphics into *MacPaint* art, and you can easily turn any *MacPaint* art into *The Print Shop* graphics. Borders, though, can't be imported; luckily, *The Print Shop* provides a good selection.

The Print Shop has quirks (I suppose they're really called "features") that you can live with, but they'd be easy to fix if Broderbund put its mind to it. The text you add to a card or announcement, for instance, is all in one block. This is annoying in a greeting card design, but devastating when you're creating a full-page sign. Although you can format any portion of the text for font, style and size changes, you can't move it around freely. You can right, center or left justify it, but the only way you can position it vertically is by adding empty lines at the top of the block. And, since it's all one block, you can't have a left-justified segment of text at the top of a sign, and a right-justified segment at the bottom; nor can you single-space some text and double-space the rest.

Another strike against *The Print Shop* is that it's copy-protected. You have to feed the master disk in every time you run the program; there's not even an option for installation on a hard disk.



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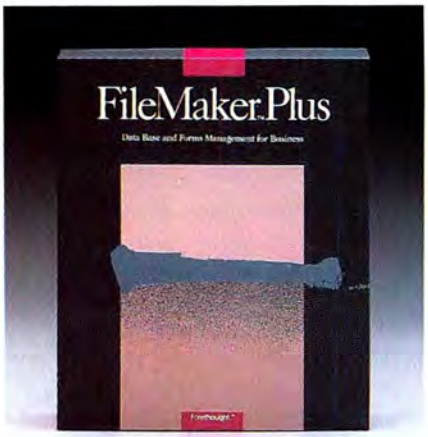

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And early versions caused serious problems if you attempted to move them to a hard disk. That problem has been fixed in version 1.02, so if you have a hard disk get that version or a higher one.

Still, *The Print Shop* is pretty much one-of-a-kind software for the Mac, and if you want it, you put up with the quirks. Its click-and-choose design method is excellent for the younger set, and might come as a relief to lots of others, too.—*Sharon Zardetto Aker*

MEMORANDUM ★★★★½

List Price: $99.95. Published by Target Software, Inc., 14206 S.W. 136th St., Miami, FL 33186. (800) 622-5483. Not copy protected.

Memorandum, from Target Software, is the electronic equivalent of Post-It Notes, those little self-sticking yellow slips of paper. A desk accessory, it may be used to attach comments to documents created with most Macintosh applications or to files in the *Finder*.

Memorandum creates four types of notes. Standard notes are attached to a specific point in a document, like a cell in a spreadsheet or a block of text in a word processor. Selecting that location in the document causes the note to pop-up. Window notes, attached to the name of the open document, are useful for general comments and for attaching notes to graphics documents. Time notes will appear or recur at specific dates and times. Scratch notes are unattached. These may be used for the "free-form" jotting down of ideas.

Memorandum notes are created with a mini word processor. Cutting and pasting between notes, as well as between notes and applications is fully supported. Both text and graphics can be placed in a note and more than one note can be attached to any location. Moving an attachment point relocates the note. "Enabled" notes, which pop-up automatically when the cell is selected, are useful with spreadsheets. "Disabled" notes, requiring positive action to deploy, are more useful with word processors, where constant scrolling and editing would have "enabled" notes popping-up almost continuously. A Show Visible Notes command gives quick access to all the hidden notes on a screen.

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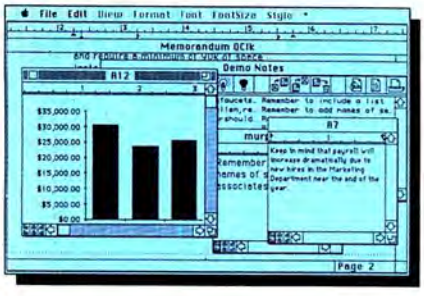
printed and otherwise manipulated from the *Note Manager*. Here you may open notes, enable or disable them, change their point of attachment, import, export, duplicate or delete them and search through all your notes by "key words." Time notes remain in the *Note Manager*, available for re-use, even after their time has passed. Scratch and Window notes can only be accessed through the *Note Manager*.

Memorandum and the *MemoLoader* (a separate program that automatically loads *Memorandum*) are installed in the



System file of your application disks (or hard disk) and require a minimum of 90K of space. Installation is easy. Just follow directions in the manual. Users with 400K drives, however, may find themselves between the proverbial rock and a hard disk. Even with applications that keep the *System* file on a separate floppy, there won't be much room. And since *Memorandum* stores notes in its own files, demands on disk space grow as you create notes, further putting the squeeze on fonts and other DAs. Installing *Memorandum* on multiple disks means each will have its own note file. Re-selecting Memorandum from the Apple menu activates a dialog that lets you open Note files on other disks.

Because notes are loaded into a portion of RAM for its operation, *Memorandum* requires a 512K or larger Mac. (It is not compatible with the Mac XL.) But working from memory means that response is instantaneous. Target Software says that *Memorandum* should have no difficulties working with programs that follow Apple guidelines. *MS Works* is noted as an exception (relocated cells do not retain their notes).

Memorandum is not without its quirks (keyword searches can be inconsistent) and foibles (some confused command key references in the manual), but for the most part it worked well with all the applications I tested. As always, it's good policy to test new software configurations on back-ups until you are satisfied with their stability.

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The five drives tested here are in the 40 M, $1500 range, and they are the fastest disks we've seen for the Mac Plus—noticeably faster than 20 M internal and external drives and even faster than bigger drives with flashy specifications.

These fast forties are also compact. Any of the five will fit into a briefcase (even though the FX/40 is twice as big as the tiny ProApp 40S). And, to top things off, they're quiet. If you've got a little extra money to move up from the standard 20 M Mac drives, these units will reward you with a real touch of class.

THE LINEUP

The DataFrame 40XP from SuperMac Technology, the FX/40 from General Computer, the MacBottom SCSI 40 from Personal Computer Peripherals, the ProApp 40S from ProApp and the Plus 45 from Rodime are all solid units which appear to be well constructed and reliable—and all have 1-year warranties. Each comes complete with cables, good documentation and a set of utility programs.

Differences in price and formatted capacities are shown in Figure 1. Of

BY RIC FORD

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General Accounting *(full-featured)* ..... 129.
BrainPower ... NCP
StatView *(statistics package)* ..... 35.
Graphidex *(DA graphics organizer)* ..... 69.
Designscope *(electronic circuit design)* .. 129.
StatView 512+ *(req. external drive, 512k)* ... 179.
Bravo Technologies ... NCP
MacCalc *(easy to use spreadsheet)* ..... 85.
Broderbund ... CP
Print Shop *(create cards and memos)* ..... 39.
Geometry *(over 350 problems!)* ..... 64.
CAMDE ... NCP
Nutricalc *(diet & nutrition analysis)* ..... 49.
Nutricalc Plus *(dietician's delight)* ..... 175.
CasadyWare ... NCP
Fluent Fonts *(two-disk set)* ..... 29.
Fluent Laser Fonts *(Vols. 1-15)* ..... *each* 48.
Central Point Software ... NCP
Copy II Mac *(includes MacTools)* ..... 20.
Challenger Software ... NCP
Mac3D *(3D graphics, CAD features)* ..... 119.
Chang Labs ... CP
Rags to Riches Ledger or Payables ..... 125.
Rags to Riches Receivables *(req. 512k)* ... 125.
The C.A.T. *(contacts, activities, time)* ..... 199.
Rags to Riches Three Pak ..... 299.
Inventory Control ..... 243.
Professional Billing ..... 243.
Concept Development ... NCP
Micro Kitchen Companion ..... 29.
America Cooks: Italian, Chinese, Mexican, French, German, or American ..... *each* 11.
Cortland ... CP
TopDesk *(7 new desk accessories)* ..... 34.
Cricket Software ... NCP
Statworks *(statistical package)* ..... 77.
Cricket Graph *(multiple windows)* ..... 127.
Cricket Draw *(advanced draw capabilities)* 177.
Data Tailor ... NCP
Trapeze *(spreadsheet, reqs. 512k)* ..... 173.
DataViz ... NCP
MacLink Plus *(transfer Mac/IBM data)* .... 159.

MacConnection Software Special
through September 30, 1987

ANN ARBOR SOFTWORKS
FullPaint

FullPaint is the advanced graphics tool that gives you all the features of MacPaint in a more flexible environment. Features include full-screen drawing, movable tool palettes, rulers and scroll bars. All the tools to allow finer control over your work. Also includes the WetPaint™ sampler disk—a collection of fonts and click art.

- Display four documents at once
- Includes ColorPrint™ utility
- Not copy-protected

FullPaint *(for your Mac)* ..... $49.

Digital, etc. ... NCP
Turbo Maccountant *(GL,AP,AR,Payroll)* .. 262.
Dove Computer ... NCP
RAMSnap *(RAM Disk/Disk Cache)* ..... 35.
Dow Jones ... CP
Market Manager PLUS 1.5 ..... 159.
Dreams of the Phoenix ... NCP
Day Keeper Calendar ..... 35.
Quick & Dirty Utilities ..... *each* 35.
Twelve-C Financial Desk Accessory ..... 35.
Dubl-Click Software ... NCP
World-Class Fonts! Vol. One or Vol. Two ... 28.
World-Class Fonts! *(both Volumes)* ..... 49.
WetPaint Vol. One or Vol. Two ..... 29.
WetPaint Clip Art *(both volumes)* ..... 49.
Calculator Construction Set ..... 39.
Electronic Arts ... CP
Deluxe Music Construction Set 2.0 ..... 63.
Enabling Technologies ... NCP
Easy3D *(create solid 3D objects)* ..... 89.
Pro 3D *(3D shaded modeling)* ..... 199.
Enzan-Hoshigumi USA ... NCP
Japanese Clip Art Scroll 1 "Earth" ..... 65.
Japanese Clip Art Scroll 2 "Heaven" ..... 65.
MacCalligraphy *(create unique designs)* .. 119.
Firebird Licensees ... NCP
Laser Author *(word processor)* ..... 105.
1st Byte ... CP
MAD LIBS *(20 "talking" stories)* ..... 14.
Speller Bee or First Shapes ..... 27.
KidTalk or Mathtalk ..... 27.
SmoothTalker *(speech synthesis)* ..... 27.
Forethought ... NCP
Factfinder *(free-form info organizer)* ..... 49.
FileMaker *(custom forms & reports)* ..... 79.
FileMaker Plus *(feature-packed database)* 159.
PowerPoint *(professional presentations)* .. 269.
Foundation Publishing ... NCP
Comic Strip Factory *(create cartoons)* .... 59.
FWB Software ... NCP
Hard Disk Backup *(protect hard disk info)* 38.
Hard Disk Partition *(speeds up hard disk)* 38.
Hard Disk Util *(program backup)* ..... 56.
Great Wave Software ... NCP
Early Music ..... 12.
KidsTime *(educational, ages 3-8)* ..... 28.
TimeMasters *(learn about time, ages 4+)* 28.
ConcertWare+ *(music composition)* .... $36.
ConcertWare+ MIDI ..... 75.
Hayden Software ... CP
MusicWorks *(songs for your Mac)* ..... 29.
VideoWorks *(animation)* ..... 32.
Home Design *(NCP)* ..... 49.
Score Improvement for the SAT ..... 59.
Score Improvement: Achievement Test. ... 59.
Ideaform ... NCP
MacLabeler *(print disk labels)* ..... 29.
DiskQuick *(catalog floppies & hard drives)* 29.
Imagine ... NCP
Smart Alarms *(DA reminder system)* ..... 38.
Industrial Computations ... NCP
Powermath *(equation solving tool)* ..... 59.
Infosphere ... CP
LaserServe *(network software)* ..... 65.
MacServe *(network software)* ..... 175.
Innovative Data Design ... NCP
MacDraft *(new updated version, 512k)* ... 159.
Kensington ... NCP
Type Fonts for Text *(16 new fonts)* ..... 29.
Type Fonts for Headlines *(req. 512k)* ..... 41.
LaserWare ... CP
LaserWorks *(requires 512k, Laserwriter)* .. 229.
LaserPaint *(requires Mac Plus, Laserwriter)* 375.
Layered ... CP
Notes for...Excel, Microsoft Works, PageMaker, or Word ..... *each* 42.
Legisoft/Nolo Press ... NCP
WillWriter 2.0 *(prepare your own will)* ..... 31.
Letraset ... NCP
Ready,Set,Go!3 ..... 249.
Linguist's Software ... NCP
Tech *(1000 different symbols)* ..... 59.
Foreign Language Fonts ..... call
Living Videotext ... NCP
More *(outlines, windows, & tree charts)* ... 158.
Lundeen & Associates ... NCP
WorksPlus Spell ..... 39.
Magnum ... NCP
Natural Sound Effects ..... 27.
Natural Sound Cable & Editor Disk ..... 89.
McPic - Volume 1 or Volume 2 ..... 29.
The Slide Show Magician 1.3 *(CP)* ..... 35.
Micro Analyst ... NCP
Mac Zap *(recover crashed hard disks)* .... 36.
Microsoft
Flight Simulator *(the Mac takes flight, CP)* 32.
Basic Interpreter 3.0 *(NCP)* ..... 64.
Chart 1.02 *(42 chart styles, CP)* ..... 72.
Multiplan 1.1 *(63 col. by 255 rows, CP)* ... 105.
File 1.05 *(flexible data manager, NCP)* ... 111.
Basic Compiler 1.0 *(NCP)* ..... 119.
Fortran 2.2 *(compiler, NCP)* ..... 169.
Works 1.0 *(integrated tool, NCP)* ..... 189.
Excel 1.04 *(power spreadsheet, NCP)* ... 224.
Word 3.0 *(word processor, NCP)* ..... 239.
Miles Computing ... NCP
Mac the Ripper *(req. Paint program)* ..... 27.
Orchestra of Fonts Vol. 4 *(30 different fonts)* 27.
Mindscape ... CP
The Luscher Profile *(personality profile)* ... 24.
The Perfect Score: SAT ..... 47.
ComicWorks *(create your own comics)* .... 48.
GraphicWorks 1.1 *(newsletters, NCP)* .... 48.
Monogram ... NCP
Dollars & Sense *(home, small business)* ... 81.
New Canaan MicroCode ... NCP
Mac Disk Catalog II *(requires 512k)* ..... 31.

Soft Wear.

Out on a limb.

We don't want to offend anyone, but people who still use hard copy are seriously out of date. Just take a look at the artistic strokes of genius on our temporarily tattooed friend. Why, for the right price, you could present your next newsletter, spreadsheet, or epic poem in real living color.

Picture your logo rippling across someone's exotic exterior. Amaze your boss as the gentle undulations of breath do things to your five-year plan that you never imagined possible. Why, even editing could be fun again!

Fleshtop publishing.

David Chalk and his partner Roy Zuckerman at Temptu Marketing in New York are designing tattoos on their Mac which are turning traditional marketing literally inside out.

It all started when Roy saw what his father, one of the world's leading cosmetics chemists, had developed for the movie "Tattoo"—a safer and longer-lasting body paint than anything previously available. He and David were soon selling the paint in kits along with design transfers which can be applied in seconds with good old rubbing alcohol.

They've done custom work for everyone from Miami Vice to Guinness Stout. And, for quick designs, the Mac is starting to come in handy (and footy, and everywhere in between). Temptu can now digitize very custom images for transfer to very custom parts.

According to our winners, temporary tattooing is "the contact sport of the 80's." So it's only natural that they've chosen the micro of the 80's to help with their design and marketing. Oh, Lydia, could you have had fun with this one. Eh, Groucho?

Contest Winner #9

Name: David Chalk, Temptu Marketing

System: Mac Plus

Applications: Designs custom temporary tattoos; tracks clients and orders; produces mailing pieces and catalogs.

MacConnection™

14 MILL STREET, MARLOW, NH 03456 1-800/Mac&Lisa or 603/446-7711

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hts in performance

Odesta ... NCP
Double Helix *(relational, custom menus)* $275.
Multi-User Helix *(requires 512k)* . . . . . 439.
OWL International ... NCP
Guide *(hypertext, free-form info)* . . . . . 79.
Guide Envelope System. . . . . 109.
Palantir ... CP
MathFlash, WordPlay or MacType . . . . . 26.
inTalk *(communication to emulation, NCP)* 99.
Passport Designs ... CP
Passport MIDI Interface . . . . . 95.
Master Tracks Pro . . . . . 259.
PBI Software ... NCP
HFS Locater *(DA organizer for HFS)* . . . . . 26.
HD Backup *(supports MFS, HFS)* . . . . . 29.
Personal Computer Peripherals ... NCP
HFS Backup . . . . . 32.
ProVUE Development ... NCP
OverVUE 2.0 *(power-packed database)* . . 149.
Mail Manager or Pers. Finance Template . . 29.
Rubicon Publishing ... CP
Dinner At Eight-Silver Palate Bundle . . . . . 52.
Satori ... NCP
BulkMailer *(mailing lists)* . . . . . 74.
BulkMailer Plus *(up to 90,000 names)* . . . 225.
Legal Billing *(attorneys to accountants)* . . 385.
Legal Billing II *(full trust accounting)* . . . . . 575.
Project Billing *(architects to engineers)* . . . 445.
Silicon Beach Software ... NCP
Silicon Press *(printer utility, 512k)* . . . . . 41.
SuperPaint *(advanced graphics program)* 54.
Simon & Schuster ... NCP
Mac Art Department *(req. Paint program)* 24.
Paper Airplane Construction Kit. . . . . 24.
Typing Tutor III *(learn to type!)* . . . . . 35.
SoftStyle ... NCP
Epstart *(Epson printer driver)* . . . . . 27.
Colormate *(color printing utility)* . . . . . 48.
Printworks *(print faster & in color)* . . . . . 49.
Laserstart *(Hewlett-Packard Laserjet)* . . . . . 58.
Softview ... NCP
Macinuse *(time-use manager)* . . . . . 35.
Software Ventures ... NCP
Microphone 1.1 *(includes Glue™)* . . . . . 129.
Solutions, Inc. ... NCP
SmartScrap & The Clipper . . . . . 41.
Glue *(creates "print to disk" capability)* . . . 41.
Springboard ... CP
Art a la Mac Vol. 1-People & Places *(NCP)* 23.
Art a la Mac Vol. 2-Variety Pack *(NCP)* . . . . 23.
Certificate Maker *(CP)* . . . . . 35.
State of the Art ... CP
Electric Checkbook *(print checks)* . . . . . 28.
SuperMac Technology ... NCP
SuperSpool . . . . . 39.
Diskfit *(backup & restore utility)* . . . . . 49.
SuperLaserSpool . . . . . $99.
Multi-User SuperLaserSpool . . . . . 259.
Survivor Software ... NCP
MacMoney *(financial planner)* . . . . . 42.
Symmetry ... NCP
Acta 1.2 *(outline/writing desk accessory)* . . 38.
PictureBase 1.2 *(clip art manager, 512k)* . . 44.
Target Software ... NCP
Memorandum *(electronic post notes)* . . . . . 62.
Telos Software ... NCP
Business Filevision *(512k, external drive)* 199.
Think Educational ... CP
MacEdge II or Mind Over Mac . . . . . 28.
THINK Technologies ... NCP
Laserspeed *(Laserwriter utility)* . . . . . 67.
Lightspeed Pascal *(includes debugger)* . . . 87.
Lightspeed C *(top-rated C Compiler)* . . . . 127.
InBox Starter Kit *(CP)* . . . . . 235.
InBox Personal Connection *(Mac & PC)* . . . call
T/Maker ... NCP
ClickArt Personal Graphics, Effects, Publications, Letters Vol. 1 or 2, Holidays, Business Image . . . . . *each* 28.
Bombay, Plymouth, or Seville Laser font . . . 46.
Write Now *(word processor)* . . . . . 104.
TML Systems ... NCP
TML Source Code Library . . . . . 58.
TML Pascal *(compiler, req. 512k)* . . . . . 68.
TrueBasic ... NCP
True BASIC *(fast, flexible, & portable)* . . . . . 59.
Algebra I or II, Pre-calculus, Trigonometry, 3D Graphics, Discrete Math, Probability, Chippendale utilities & Calculus . . . . . *each* 35.
TrueSTAT *(statistics)* . . . . . 58.
Runtime *(create stand-alone applications)* . . 59.
Unicorn ... CP
Animal Kingdom *(ages 6-12)* . . . . . 27.
Decimal Dungeon *(math, ages 9 and up)* . . 27.
Fraction Action *(arcade style math game)* . . 27.
Mac Robots *(pre-school program)* . . . . . 27.
Math Wizard *(math games, ages 5-10)* . . . . 27.
Read-A-Rama *(reading, ages 5-8)* . . . . . 32.
William & Macias ... NCP
myDiskLabeler *(design & print labels)* . . . . . 24.
myDiskLabeler w/Color *(req. Imagewriter II)* 33.
myDiskLabeler w/Laserwriter option . . . . . 38.
Working Software ... NCP
Spellswell *(spelling checker)* . . . . . 45.
Spellswell Medical Dictionary. . . . . 59.

GAMES

Accolade ... CP
Hardball *(baseball simulation)* . . . . . 24.
Activision ... CP
Tass Times in Tonetown . . . . . 21.
Championship Star League Baseball. . . . $22.
Shanghai *(Mah Jongg strategy)* . . . . . 24.
Addison-Wesley ... CP
Puppy Love *(your dog will love it!)* . . . . . 15.
Artworx ... CP
Bridge 5.0 *(sharpen your skills)* . . . . . 20.
Avalon Hill ... CP
MacPro Football *(req. 512k)* . . . . . 30.
MacPro Football 85 Team or Season . . . . . 16.
Blue Chip ... CP
Millionaire, Tycoon, Baron or Squire. . . . . 35.
Broderbund Software ... CP
Lode Runner *(over 150 levels)* . . . . . 24.
Ancient Art of War *(military strategy)* . . . . . 27.
Toy Shop *(create working models)* . . . . . 39.
Bullseye ... CP
Ferrari Grand Prix *(Formula One racing)* . . . 34.
Fokker TriPlane Flight Simulator . . . . . 34.
Electronic Arts ... CP
Archon *(arcade strategy, req. 512k)* . . . . . 27.
Skyfox *(3D graphics)* . . . . . 27.
Seven Cities of Gold. . . . . 27.
One on One/Dr J vs Larry Bird *(req. 512k)* . . 27.
Patton-vs-Rommel *(req. 512k)* . . . . . 27.
Pinball Construction Set. . . . . 27.
Chessmaster 2000 . . . . . 30.
Epyx ... CP
Rogue *(strategy dungeon classic!)* . . . . . 15.
Sub Battle Simulator . . . . . 24.
Winter Games *(Olympic events)* . . . . . 24.
Hayden Software ... CP
Perplexx *(scrabble-type game)* . . . . . 24.
Sargon III *(9 levels of chess)* . . . . . 29.
Infinity Software ... CP
Grand Slam *(tennis, req. 512k)* . . . . . 27.
Infocom ... CP
Hitchhiker's Guide to the Galaxy . . . . . 18.
Leather Goddesses, Trinity, Moonmist, Ballyhoo, Bureaucracy *(standard)* . . . *each* 24.
Zork Trilogy . . . . . 45.
Invisiclues Hint Booklets *(please specify)* . . . 6.
MacroMind ... NCP
Maze Wars+ *(play via modem or network)* 32.
Miles Computing ... CP
Harrier Strike Mission *(3D flight simulation)* 27.
Quintette *(strategy of "Go")* . . . . . 27.
Down Hill Racer. . . . . 27.
Mindscape ... CP
Balance of Power *(world politics)* . . . . . 30.
King of Chicago *(req. minimum 512E)* . . . . 30.
Brataccus *(great graphics, req. 512k)* . . . . 30.
Uninvited *(mystery adventure)* . . . . . 30.
Shadowgate *(fantasy graphic adventure)* . . 30.
Deja Vu *(murder mystery)* . . . . . 30.
PBI Software ... CP
Strategic Conquest *(multi-user)* . . . . . 35.

1-800/Mac&Lisa 740U

MacConnection™

MacConnection, 14 Mill Street, Marlow, NH 03456 800/622-5472 603/446-7711

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All items subject to availability. Prices subject to change without notice.

*Defective software replaced immediately. Defective hardware replaced or repaired at our discretion. Some items have warranties up to five years.

Please circle 82 on reader service card.

with your Mac.

Primera Software ... CP
Smash Hit Racquetball *(top-rated!)* ..... $15.
Psion ... CP
Psion Chess *(3D and multi-lingual)* ..... 31.
Rainbird ... CP
Pawn *(fantasy adventure)* ..... 27.
Sierra On-Line ... CP
King's Quest ..... 30.
King's Quest II ..... 30.
Space Quest ..... 30.
Silicon Beach Software
Airborne! *(CP, the classic!)* ..... 20.
Enchanted Scepters *(CP, over 200 scenes)* 21.
Dark Castle *(NCP, arcade action)* ..... 28.
World Builder *(NCP, program creator)* ..... 41.
Simon & Schuster ... CP
Star Trek—The Kobayashi Adventure ..... 24.
Sir-Tech ... CP
Mac Wizardry *(high-rated fantasy)* ..... 35.
SPHERE, INC. ... NCP
GATO *(submarine simulation)* ..... 26.
Orbiter *(space shuttle simulation)* ..... 27.
Tellstar II *(No. & So. hemispheres, req. 512k)* 32.
XOR ... NCP
NFL Challenge *(be the coach!)* ..... 79.

HARDWARE

Manufacturer's minimum limited warranty period is listed after each company name. Some products in their line may have longer warranty periods.

NOTE: Some hardware items are available in either platinum or beige color. Please specify.

20 Megabyte SCSI Hard Drive ..... 589.
Apricorn ... 1 year
ApriCord Mac *(for Mac 512k or Mac Plus)* 75.
AST Research ... 2 years
AST TurboScan *(300 dpi scanner)* ..... 1479.
AST 2000 *(20 MB, 20 MB tape)* ..... 1479.
AST 4000 *(74 MB, 60 MB tape)* ..... 3895.
Curtis Manufacturing ... lifetime
Diamond *(6 outlets)* ..... 29.
Emerald *(6 outlets; 6 ft cord)* ..... 36.
Sapphire *(3 outlets; EMI/RFI filtered)* ..... 47.
Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 55.
Dove Computer ... 90 days
Mac Snap Memory Upgrades ..... call
Ergotron ... 1 year
Mouse Cleaner 360° ..... 15.
MacTilt or MacTilt SE ..... 74.
MacBuffer 512k ..... 329.
MacBuffer 1024k ..... 429.
Farallon Computing ... 1 year
PhoneNET PLUS *(DB-9 or DIN-8)* ..... 39.
Hayes ... 2 years
Smartcom II *(communications software)* .. 88.
Smartmodem 1200 ..... 299.
Smartmodem 2400 ..... 449.
InterBridge *(connect Appletalk networks)* 599.
IOMEGA ... 1 year
Bernoulli Box *(dual 10 MB w/SCSI)* ..... 1579.
Bernoulli Box *(dual 20 MB w/SCSI)* ..... 1879.
Kensington ... 1 year
Appletalk Cable Clips or Connectors .. *each* 1.
Mouseway *(mouse tracking pad)* ..... 8.
Mouse Pocket *(for your idle mouse)* ..... 8.
Mac Plus/Mac SE System Saver Cover .... 9.

MacConnection Hardware Special
through September 30, 1987

KOALA
MacVision

The MacVision digitizer converts any video signal into a high quality image directly within your graphics software. Simply attach the unit between a video camera and your Mac to digitize three-dimensional objects, or capture images from your VCR. Completes a full screen scan in less than 30 seconds.

- Operates as a desk accessory
- Uses any RS170 standard video source
- Features MoreVision™ special effects software
- Special camera offer inside

MacVision *(for your Mac)* ..... $169.

Imagewriter II Dust Cover ..... 9.
Mouse Cleaning Kit w/Mouse Pocket ..... 17.
Disk Case *(holds 36 Mac disks)* ..... 19.
Disk Drive Cleaning Kit ..... 20.
Tilt/Swivel ..... 22.
Universal Copy Stand ..... 24.
Polarizing Filter *(Mac Plus or Mac SE)* .... 34.
Surge Suppressor ..... 34.
Printer Muffler *(80 column)* ..... 39.
Printer Muffler *(132 column)* ..... 52.
Control Center ..... 64.
System Saver Mac ..... 64.
A-B Box *(for the Mac Plus)* ..... 64.
Turbo Mouse ..... 85.
Koala Technologies ... 90 days
MacVision ..... see special
Kraft ... 1 year
3 Button QuickStick ..... 39.
Migent ... 1 year
Pocket Modem *(ext. 300/1200 baud)* .... 169.
Mirror Technologies ... 1 year
Magnum 800 External Drive ..... 209.
Magnum Tape 20 Backup ..... 899.
Magnum Tape 40 Backup ..... 1199.
MagNet 40/40 *(40MB, 40MB tape)* .... 2395.
MagNet 20x *(w/cable & backup utilities)* 779.
MagNet 30x *(w/cable & print spoolers)* .. 949.
MagNet 40x *(w/cable & print spoolers)* .. 1299.
MagNet 85x *(w/40 MB tape)* ..... 3995.
Network Specialties ... 1 year
Stretch Screen *(19" monitor)* ..... 1579.
Nuvotech ... 1 year
EasyNet *(AppleTalk network connector)* ... 29.
Personal Computer Peripherals ... 1 year
MacBottom Hard Drive 21MB *(SCSI)* .... 859.
MacBottom Hard Drive 45MB *(SCSI)* ... 1285.
SoftStyle ... 90 days
MacEnhancer *(for plotters to printers)* .... 179.
Summagraphics ... 90 days
MacTablet 12" x 12" ..... 379.
Systems Control ... 2 years
MacGard *(surge protection)* ..... 55.
Thunderware ... 90 days
ThunderScan 4.0 with PowerPort ..... 199.
Western Automation ... 1 year
DASCH RAMdisk 2000k ..... 459.

DISKS

Sony 3½" DS/DD Disks *(box of 10)* ..... $21.
MAXELL 3½" DS/DD Disks *(box of 10)* ... 21.
Fuji 3½" DS/DD Disks *(box of 10)* ..... 21.
Verbatim 3½" DS/DD Disks *(box of 10)* ... 23.
3M 3½" DS/DD Disks *(box of 10)* ..... 23.

INFORMATION SERVICES

Compuserve
Compuserve Information Service ..... 24.
Dow Jones
Dow Jones News/Retrieval Membership Kit 24.

ACCESSORIES

Computer Coverup
Imagewriter II Cover ..... 8.
Mac Plus & Keyboard *(two covers)* ..... 10.
I/O Design
Imageware II *(Imagewriter II carry case)* .... 49.
Macinware Plus *(Mac Plus carry case)* ..... 69.
Macinware SE *(Mac SE carry case)* ..... 89.
Kalmar Designs
Teakwood Roll-top Case *(holds 45 disks)* ... 14.
Teakwood Roll-top Case *(holds 90 disks)* ... 21.
Teakwood Roll-top Case *(holds 135 disks)* .. 29.
Magnum
Mouse Mover *(let your mouse ride!)* ..... 14.
Moustrak
Moustrak Pad *(standard 7" x 9")* ..... 8.
Moustrak Pad *(large 9" x 11")* ..... 9.
Sensible Softworks
High Quality "MacAttire" dust covers .... 7-17.
Smith & Bellows
Mahogany Disk Case *(holds 90 disks)* ..... 28.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
- No sales tax.
- All U.S. shipments insured; no additional charge.
- APO/FPO orders usually shipped 1st Class Mail.
- Allow 1 week for personal and company checks to clear.
- UPS Next-Day-Air available.
- COD max. $1000. Cash or certified check.
- 120 day limited warranty on all products.*
- To order, call us anytime Monday thru Friday 9:00 to 9:00, or Saturday 9:00 to 5:30. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30.

SHIPPING

Note: Accounts on net terms pay actual shipping. **Continental US:** For printers and drives add 2% for UPS ground shipping (call for UPS Blue or UPS Next-Day-Air). For all other items, add $2 per order to cover UPS shipping. We will automatically use UPS 2nd-Day-Air at no extra charge if you are more than 2 days from us by UPS ground. **Hawaii:** For printers and drives, actual UPS Blue charge will be added. For all other items, add $2 per order. **Alaska and Outside Continental US:** Call 603/446-7711 for information.

The Fast Forties

	40XP	FX/40	Plus 45	SCSI 40	ProApp40S
Price	$1999	$1799	$1595	$1795	No list, street
					$1250
Capacity (M-bytes)	41	38	43	42	38
Price/M-byte	$49	$47	$37	$43	$33

Figure 1. List price, formatted capacity, and cost per megabyte of hard disks. Capacity is rounded to nearest megabyte.

General Computer's HyperDrive FX/40 is physically the largest of the drives tested. The activity light (front panel, top right) is very reassuring, as are the soft noises the disk makes when it is reading and writing.

The DataFrame 40XP can't be beat for speed. This very popular unit has both power and activity lights in the slit that runs up the center of the case.

course, selling price will vary from list price, so the cost/megabyte shown is only an approximate indication of the actual cost to you.

The ProApp drive is tiny, even smaller than the MacBottom and DataFrame, both of which are very compact and easy to carry in a briefcase (SuperMac supplies a nice, optional carrying case for $49.95). The Rodime 45 Plus is only a tad bigger than the MacBottom and DataFrame, with its protrusion for the fan in the back. The FX/40 is bigger than the others—but it's still portable, although it won't fit in a narrow briefcase.

QUIET COOL

All the disks were quiet enough to use comfortably at home. The Rodime was a bit noisier than the others, but still acceptable. The 40XP was the only drive which made a lot of noise while it was reading and writing. It sounds strange at first, but I found the audible feedback could be useful—telling you instantly how well your disk cache is working, for instance, via the sound patterns. The HyperDrive FX/40 and ProApp 40S were very quiet, with a sound that could be ignored after a while, almost leaving the

One problem with all the backup programs is that they are tied to the specific hard disk, so that you can't use them to back up other hard disks.

PCPC's MacBottom 45 is the smallest and most easily portable of the drives tested. The ultra quiet fan is mounted in the center. This unit is the personal favorite of several of the *MacUser* editors.

impression that they were RAM-disks. The effect was heightened by the lack of any indicator lights on these two drives. The Rodime has a light that shows read/write activity, and the DataFrame has both a power indicator and a separate read/write light, a very nice touch. The MacBottom has only a power-on light. The ProApp and DataFrame have no fans, and they don't seem to need them, but the other three do.

Only the ProApp drive is missing a way of setting the SCSI address easily. This is a problem because the disk comes set to ID = 0, which is incompatible with any Mac SE or Mac II that has an internal hard disk. The other four all have handy SCSI addressing techniques, although

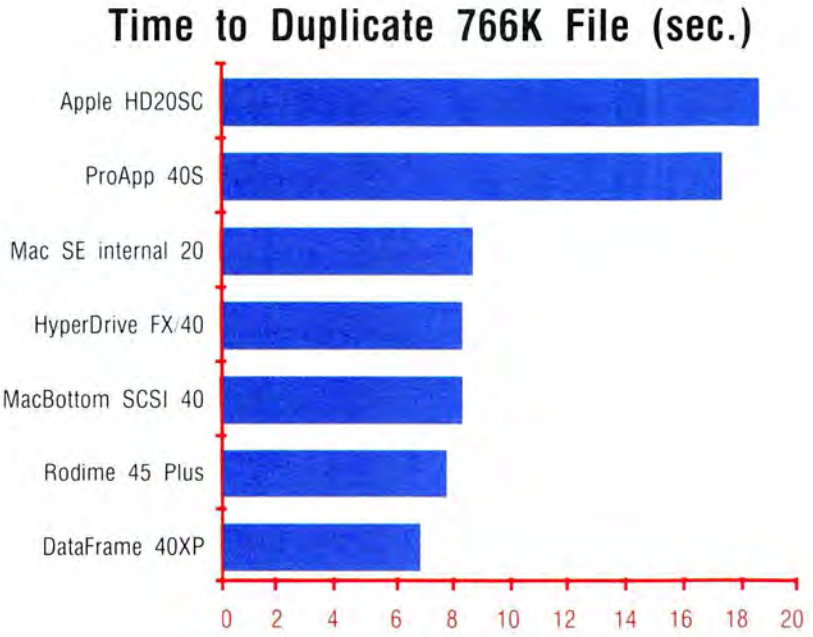


Figure 2. Hard Disk Performance. The time needed to duplicate a 766K file in the Finder. All tests used Mac Plus except for test of Mac SE internal disk.

DiskFit is the most practical for backing up a 40M hard disk repeatedly, because it reuses floppy disk space when it backs up an updated file.

each is slightly different. The FX/40 and 40XP do it in software—the 40XP makes you run the program from the hard disk itself (a problem if the hard disk doesn't start up correctly), while the FX/40's utility must be run from a floppy. The FX/40 actually shows you the other disks on the SCSI bus, a handy feature. The MacBottom has a push-button underneath. In the final analysis, though, I liked the Rodime's approach the best: a rotary switch on the back that you turn with a small screwdriver. The advantage of this hardware approach is that it's completely independent of whether the disk shows up on the Finder desktop or whether you happen to have the floppy disk around.

The FX/40 and ProApp 40 are the only drives that don't have internal SCSI termination. It doesn't matter much unless you start chaining multiple drives, when the external terminator becomes an advantage. I did have trouble using the FX/40 chained with the DataFrame until I discovered that the DataFrame had to be powered on first. In general, I've found the power-on sequence is tricky with multiple drives, and can prevent you from starting up or mounting all disks unless you do everything right.

CONTROL YOURSELF

Each of the packages comes with software for updating the disk's software "driver" without wiping out the data on the drive, and each drive (except the ProApp) worked with

The Fast Forties

These hard disks are a very fast lot, and the only one off the pace is the ProApp 40S. The others are very similar in performance, and much faster than standard 20 M disks.

the Mac SE. Utilities also provided the ability to test the disks for defects and to reformat (reinitialize) them, although SuperMac didn't provide for non-destructive testing. The MacBottom utility software was not as easy to use or as "friendly" as the others, but you don't expect to use these features often. The other, earlier MacBottom software (for their serial hard disk) was a model of friendly, Mac-ish design.

Bacchi is a company that seems to have a good business in supplying backup software to other companies. Both Rodime and ProApp use Bacchi backup software (it's also sold separately by FWB) under different names. Unfortunately, restoring a file from backup with this program changes its modification date, and the user interface is awkward when compared to better programs such as *HFS Backup* from Personal Computer Peripherals. SuperMac actually dropped their Bacchi backup program in favor of an excellent one, called *DiskFit*, from Dantz Software. General Computer's backup program is their own, and it has awkward features, although it's flexible like the others.

MISSING LINK

One problem with all the backup programs is that they are tied to the specific hard disk, so that you can't use them to back up other hard disks. Proprietary hooks are OK for backup, but a problem when you want to restore to a different vendor's disk when your hard disk crashes. Both *DiskFit* and *HFS Backup* permit unrestricted restore.

Another issue is that of capacity. *HFS Backup*, in its current form, will only back up to floppy disks. 40 M is a lot of floppy disks. These floppy-backup programs may soon be made obsolete by tape backup, although some may reappear in different forms for tape.

DiskFit is the most practical for backing up a 40 M hard disk repeatedly, because it re-uses floppy disk space when it backs up an updated file. *HFS Backup* always adds more floppies to the backup pile, but it has the advantage of retaining a backup of each version of your files, and it has much more flexible options for controlling what gets backed up or restored.

Hard disk vendors have been throwing in extra software utilities with their drives to make them more attractive. These utilities are usually available elsewhere for a reasonable price, and often in better versions. But they can be handy. The HyperDrive, DataFrame and MacBottom all come with both ImageWriter and LaserWriter spooling software. The HyperDrive's spoolers are outclassed by the others, but General Computer also offers a unique file-encryption utility. We didn't need it, and Harry Chesley's shareware *PackIt III* program does the same thing. The MacBottom comes with two useful extras: *Eureka*, an HFS file locater desk accessory, and *Floppy Copy*, a program to quickly copy floppy disks on a single-floppy Mac.

The ProApp 40S is very small, but very fast. It sits next to your Mac. This unit has been extraordinarily reliable.

ON THE MARK

There's good news in the performance category. These hard disks are a very fast lot, and the only one off the pace is the ProApp 40S. The others are very similar in performance, and much faster than standard 20 M disks. See Figure 2 for a comparison, and note that performance could be even faster if the disks are used on a Mac SE.

The best reason for buying four of these drives is their outstanding per-

If you simply need capacity, two 20 M drives cost about the same and provide the security of redundancy. It's highly unlikely that two drives would both fail at the same time.

The Rodime 45 is the newest of the units tested here. It sits under the Mac and is very quiet and efficient. Rodime is one of the largest makers of hard disks in the world.

formance. If you simply need capacity, two 20 M drives cost about the same and provide the security of redundancy (it's highly unlikely that two drives would both fail at the same time). Other, high-end drives formatted specifically for the Mac II may be faster on that machine, but it will be hard to beat this group on a Mac Plus.

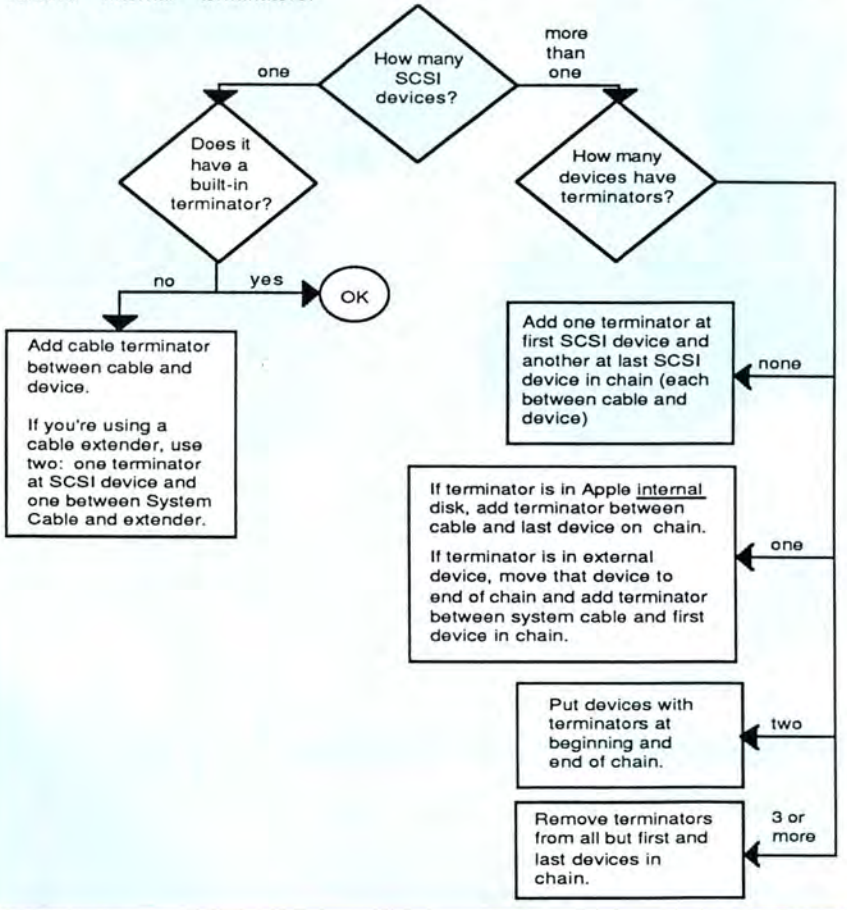
Extra software is not really an issue. Outside of the proprietary testing and formatting utilities, which are all adequate (although the MacBottom's aren't elegant), you can get backup, printing and security utilities separately that are at least as good as what's bundled here—without paying too much money.

For speed, software quality and thoughtful design, the DataFrame 40XP takes the cake—but it's also the most expensive. With few sacrifices, you can get the MacBottom and save some money or the Rodime and save more money (unless you spend the savings on software). The winner for quiet beauty is the ProApp, while the HyperDrive is equally quiet and substantially faster, but rather large. Selling price and individual preferences should guide your final decision, but any of these "Fast Forties" should prove a good companion for your Mac data.

RIC FORD IS ONE OF THE EDITORS OF THE MUCH-RESPECTED MACINTOUCH AND TECHNICAL EDITOR OF MACWEEK.

SCSI Termination

Proper SCSI termination can be confusing, especially when you're connecting drives from different vendors (something you might want to do to transfer data from one to the other). This flowchart explains how to configure the termination, but you'll have to consult the manufacturers of the drives for further instructions if you need to add or remove "internal" terminators.



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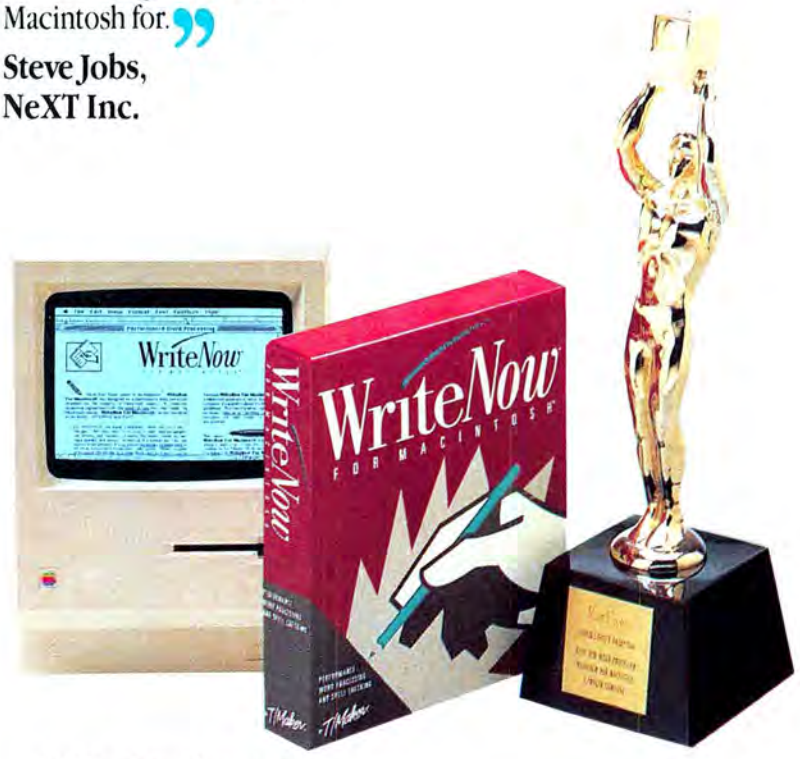

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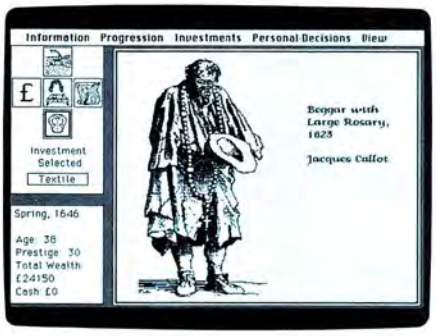

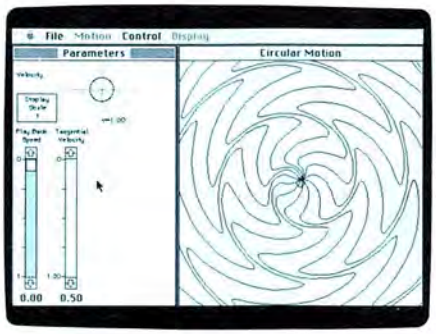

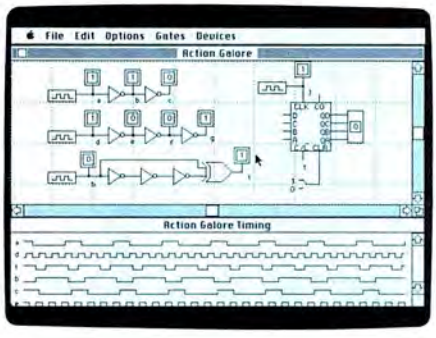

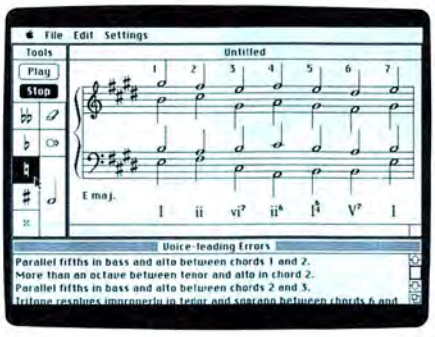

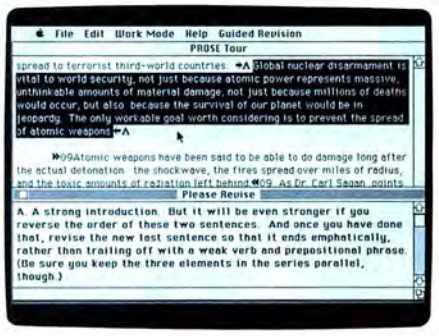

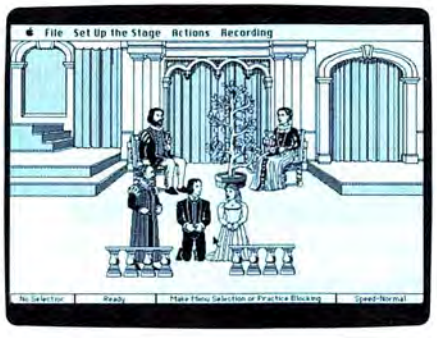

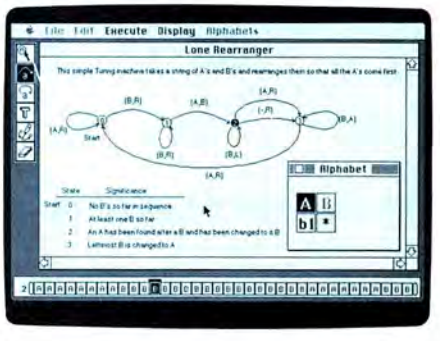

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On the Xpress Track

If you need desktop publishing power, check out Quark Xpress. It's a top-of-the-line product.

TOUGH LOVE. *XPRESS* IS THE KIND of product you really want to love. It has many amazing features, including some you weren't really sure you'd ever see—and some you didn't even know you wanted. But Quark made business decisions that make the program tough to love. You may end up liking it a lot, but you probably won't fall in love. On the other hand, they're definitely on the right track. With some work they could end up with a bullet train (metaphorically speaking, since no desktop publishing software will ever be known for its speed, except negatively).

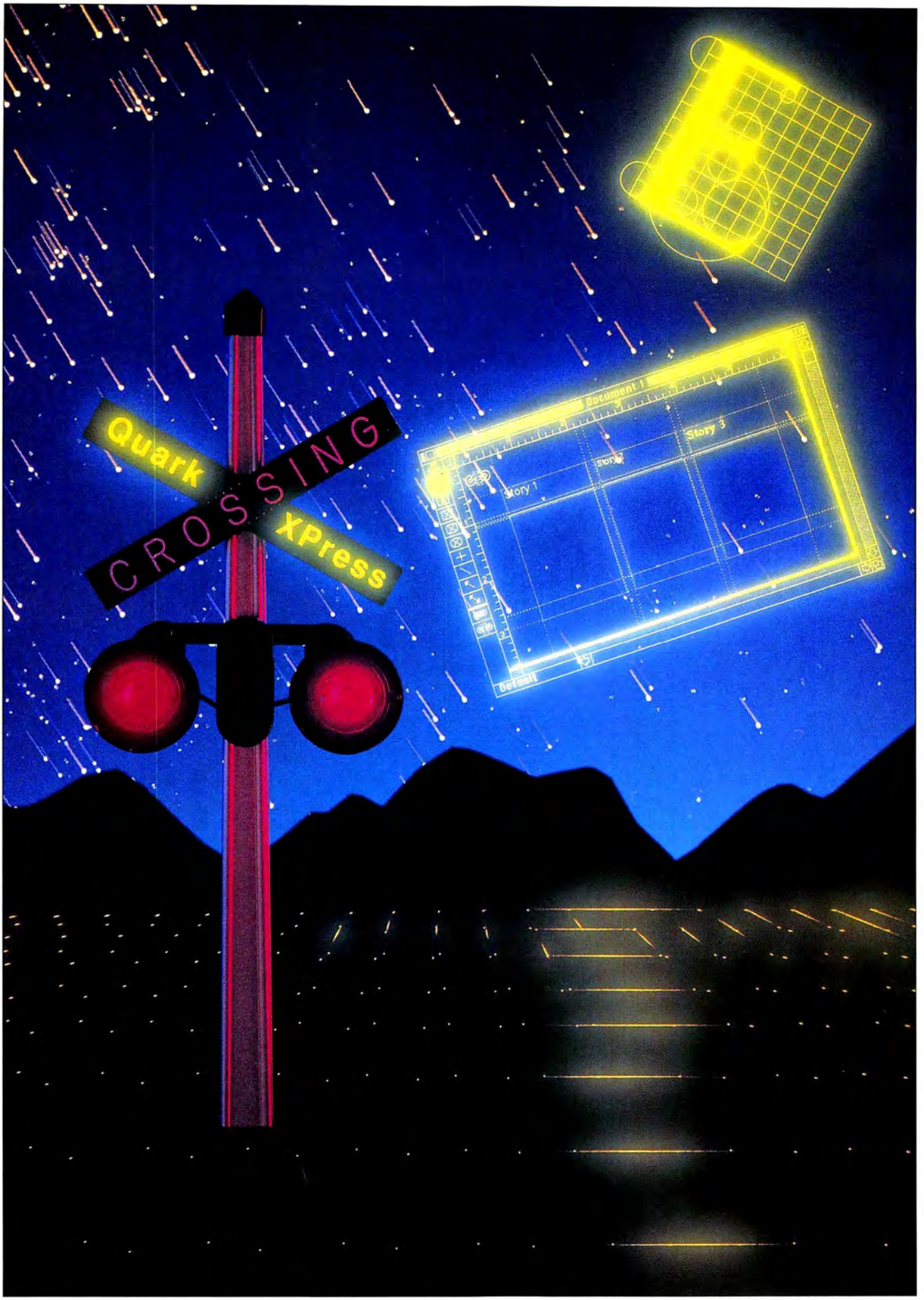
BOX CARS

Xpress has an atypical approach to layout. The unit of work in *Xpress* is the box. There are text boxes and graphics boxes. Once a box is created, it can be resized and moved around the page. Boxes can also contain other boxes, as well as graphic elements such as lines and arrows. These "children" remain with their "parent" box as it is moved around and manipulated, which makes some layout tasks easier to accomplish. Boxes also have relative "layer" positions, and can be brought forward or sent behind other boxes (similar to *MacDraw*) with the provision that child boxes cannot be sent behind their parent. Boxes can also be "framed" with various graphic frames which can have width and color specified. A separate program called the *Frame Editor* is provided to customize these frames.

BY ROBERT R. WIGGINS

Text boxes are the backbone of *Xpress*. Their placement and size are controlled with the mouse, or more precisely (to the thousandth of an inch) via the Modify command under the Item menu. Text boxes can contain multiple, evenly spaced columns (uneven columns can be achieved using multiple boxes and linking, described later), and a "margin," or text inset, inside the box can be set. Since *Xpress* supports color, text boxes can have a background color with various levels of shading. The text can be any of the available colors (eight on the Macintosh Plus and SE, many more on the Macintosh II) with the same levels of shading available. Text boxes can be transparent and overlay other boxes, or opaque, in which case text in a parent box or in a box overlapped by the opaque box will run around the opaque box.

The other major building block is the picture box. Picture boxes have the same placement and movement flexibility as text boxes, but have additional capabilities. Picture boxes can be rectangular (with or without rounded corners) or oval. A picture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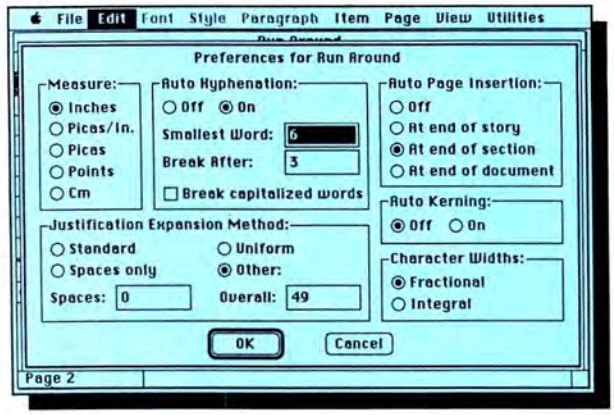
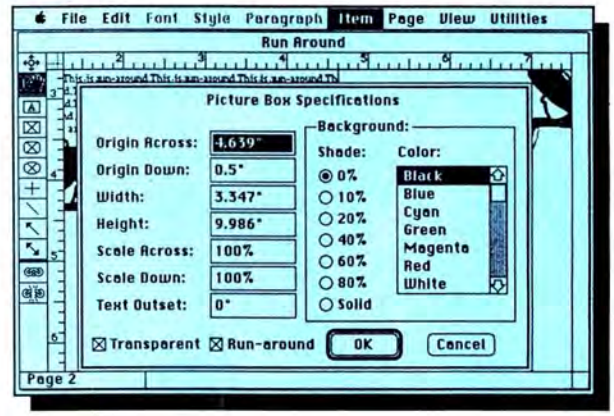
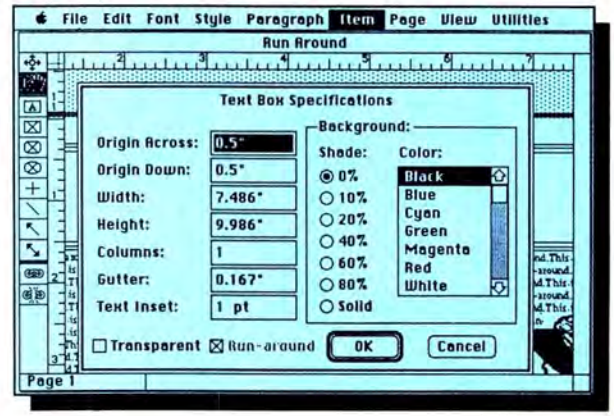


***Xpress* Preferences Screen: *Xpress* has many user-defined options which are associated with each document, as shown here. The automatic hyphenation control is especially handy.**



***Xpress* Picture Box Specs: *Xpress* allows very tight control over placement and sizing of graphics, including scaling. Text flows automatically around "runaround" boxes, and around the graphic in the box if Transparent is also selected.**



***Xpress* Text Box Specs: Most of the same options available for picture boxes are available for text boxes, with the addition of column and gutter control.**

box acts as a window onto the underlying picture. It can be moved around independently of the box with the mouse, creating a sort of free-form cropping tool that is easy to use. The underlying picture can also be scaled both horizontally and vertically with exacting precision using percentages, and the scaled image can still be "cropped" using the mouse to position it within the box. This scaling capability is excellent for use with bit-mapped images.

RUNAROUND TRAIN

The "drop-dead" feature of *Xpress* is being able to run the text around graphics. Like text boxes, picture boxes can be transparent or opaque. An opaque picture box acts exactly like an opaque text box and causes text in parent boxes or in boxes overlapped by the opaque box to run around. Also like text boxes, picture boxes can be transparent, and overlay text or picture boxes. But picture boxes have an additional capability.

The box itself can be transparent while the graphic within it is opaque, in which case text runs around the outline of the underlying graphic itself. This is an extremely powerful feature when combined with the other graphics capabilities of *Xpress*.

When flowing text around a transparent, runaround picture box, the outline of the graphic itself is used, similar to the way *MacPaint* determines where to fill with the paint bucket tool. If there is an opening in the graphic wide enough, the text will flow into it, then return to tracking the outside of the graphic on the other side of the opening. Such openings can be "created" by cropping, so care should be taken to avoid any unwanted effects. If the picture box is not at the edge of the text box, the text will run around whichever side of the picture has more room. A single column of text will not run around both sides of a picture.

TRAIN OF THOUGHT

Xpress has a unique way of linking text boxes together to place stories. When you first create a document, a default text box with the number of columns you specified fills up the space between the margins you specified. When you then use the Get Text command on the File menu to place a text or *MacWrite* or *Word* 1.0 document (the version of *Xpress* reviewed does not properly interpret *Word* 3.0 documents, although it will try unsuccessfully to place them), it fills the currently selected text block, then automatically inserts pages containing the default text box at the end of the section until the story is placed. Automatic page insertion can be controlled via the Preference item.

The default linked text chain (and other master items) can be set up using Show Default from the View menu. There are also linking and unlinking tools, which are used to dynamically change box linkages. It takes a while to get the hang of linking and unlinking, but once mastered it can be handled easily.

A particularly useful feature of *Xpress* involves page numbering.

Quark made business decisions that make Xpress tough to love.

Like some word processors, *Xpress* documents can have sections whose pages are separately numbered. Each section can be given any starting page number desired, and pages can be numbered numerically (1, 2, 3, 4), in upper case Roman numerals (I, II, III, IV), lower case Roman numerals (i, ii, iii, iv), upper case alphabetic (A, B, C, D) or lower case alphabetic (a, b, c, d). But there's more. Text boxes "know" what page they're on. They also "know" what page the previous linked box is on, and what page the following linked box is on. So you can use phrases like "this is page..." or "continued on page..." and "continued from page..." and *Xpress* can supply the appropriate page numbers

MAKING TRACKS

The desktop publishing field is getting crowded, so features become an important point of comparison. When it comes to features, *Xpress* has more than its share. In addition to those already described, *Xpress* features full tracking and kerning capabilities, specified in hundredths of an em (an em space is a standard printing measure, equal to the width of the letter "M" in the currently selected font). Automatic kerning is available as a preference by using the kerning tables for each font. (Kerning tightens the space between two letters to make them more readable.) Manual kerning can be done between any two letters. Tracking is used to uniformly widen or narrow the space between letters. Text can also be "horizontally scaled,"—compressing it down to 25% or expanding it up to 400% its length. In scaling, the width of a letter also changes, unlike tracking and kerning.

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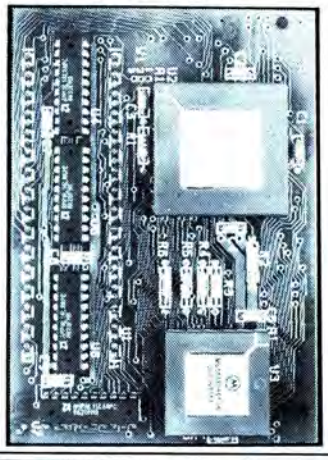

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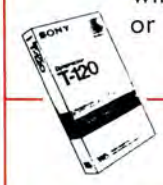

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On the Xpress Track

HAULING WORDS

In addition to its page layout capabilities, *Xpress* has many of the features of a word processor, such as full find/change capability within a text chain, including wild card searches. A spelling checker checks individual words or an entire story (text chain), giving a word count in addition to finding any suspect words. You can also create and use your own auxiliary dictionaries. Automatic hyphenation is available as a Preference, with options to limit both the size of the words to be hyphenated and the number of letters that follow a hyphen. Entries can be added to and deleted from the hyphenation exception dictionary.

Each paragraph in a story can have its own margins, spacing (including "open space," which is a 12-point blank line before the paragraph), first line indent, space before, space after and leading (specifiable in thousandths of a point). Justifications available are left, right, centered and justified. The expansion methods used for justified text can be set in Preferences. Left, right, center and decimal tabs are all available as well, with an optional fill character.

The "drop-dead" feature of Xpress is being able to run the text around graphics.

ROUNDHOUSE ROUNDUP

The feature list goes on and on: the ability to work on multiple documents; the ability to insert *Xpress* documents into other *Xpress* documents; support for the Linotronic in addition to the LaserWriter and ImageWriter; the ability to print

Desktop Non-publishing

Much has been made of the concept of desktop publishing—the ability to produce an almost professional quality publication using a Macintosh (or even a lesser computer). The release of *Xpress* and *PageMaker* 2.0, with their support for direct printing to a Linotronic and their more precise kerning and tracking capabilities, the trend seems to be accelerating.

But these programs are not desktop *publishing* packages, they are only desktop *layout and paste-up* packages. Once a page is laid out and has its pictures pasted up, it's usually translated into "mechanicals" which are used to prepare "signatures" which are eventually cut and bound into a final product. None of the major desktop publishing packages for the Macintosh or the IBM PC will produce signatures.

What is a signature? While they can get quite complicated, let's take a simple, real-world example: a normal, everyday company or user group newsletter, on 8½ by 11-inch pages (standard page size). Most newsletters would be printed on double-width paper (17 inches by 11 inches) on both sides, then folded. The simplest example would be a four-page newsletter, which would be printed like this:

FRONT	BACK
P.4 P.1	P.2 P.3

An eight page newsletter would be similar:

FRONT	BACK
P.8 P.1	P.2 P.7
FRONT	**BACK**
P.6 P.3	P.4 P.5

Simple enough, although it obviously gets more and more complicated as the number of pages increase. But even though packages like *Xpress* and *PageMaker* will allow you to print on 11 by 17 paper (on a Linotronic), they will not do signatures. So you must print out each page, and then manually paste up to create the signature for the printer to use. So even though you have a several-thousand-dollar computer running a many-hundred-dollar package and attached to a many-thousand-dollar printer, it is still up to you to figure out what pages belong next to each other. That doesn't sound like desktop publishing, does it?

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On the Xpress Track

color separations (with or without registration marks) as well as color printing on the ImageWriter II; a standard Font menu and a fairly standard Style menu; the ability to add, delete or move pages within a document.

At press time, Quark was planning an update to *Xpress* to be released in July to allow importing Microsoft *Word* 3.0 and Microsoft *Works* files, and to support the TIFF format of scanned graphics—which is rapidly becoming the industry standard.

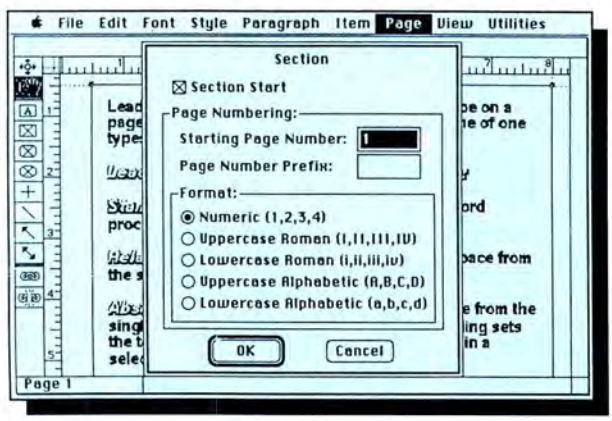
RUNNING OUT OF STEAM

Xpress has so many features, in fact, that it's easy to miss its negative points—some of them, anyway. But they're there, nonetheless.

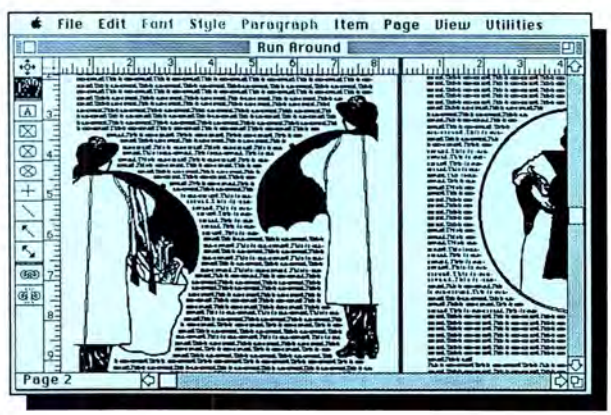
The major complaints about *Xpress* are its copy protection and its price. The price issue is debatable, since *Xpress'* many features help justify the higher price; the copy protection issue is not. Serious business users cannot depend on copy-protected software, and many users have complained publicly about this particular copy protection (the original version of the installer program would not recognize a proper master disk on a Macintosh II, although this was fixed in version 1.03). To this end, Quark has an Extended Support program which for $100 entitles the user to one year of free updates that are not copy-protected, free technical phone support and a newsletter. Since the serious business user requires the reliability of non-copy-protected software, this effectively adds $100 to the price of *Xpress* while removing a major shortcoming.

Xpress cannot move a box from one page to another. The contents of the box can be cut, copied and pasted, but not the box itself. This is especially bothersome when a parent box contains many children boxes, each of whose contents must be individually moved, and whose overall layout must be recreated on the new page. Quark expects to add this ability on a future version, but for now it is a real limitation.

Another complaint is that *Xpress*



***Xpress* Section Screen: *Xpress* offers many features found in word processors, such as the ability to control page numbering by section.**



***Xpress* Runaround Screen: The most impressive feature of *Xpress* is text runaround. Text can wrap around a picture box's borders (as shown on the right side of the screen) or around the actual graphic (on the left).**

The alternative to markers, typesetting, spray cans, knives, triangles, press type, T-squares, stat cameras, sketch pads, layout pads, tissues, kneaded erasers, proportion scales, black pencils, red pencils, blue pencils, pens, air brushes, compressors, inks, brushes, rubber cement, art board, foam board, and reams of telephone messages from studio reps.

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On the Xpress Track

can be very slow. While this is often understandable since it is doing so much, the slowness is sometimes compounded by poor design. For instance, when opening a document, after waiting several minutes for the text to be flowed, *Xpress* may announce that it needs fonts unavailable in your *System* (if you have changed start-up disks), and then proceed to reflow the document for another several minutes. The major slowness seems to be related to runaround, but the wait can be intolerable on occasion. Not surprisingly, *Xpress* is considerably faster on a Macintosh II.

It is fortunate that *Xpress* is easy to use, since its manual is not much help. There's a fair tutorial, but the reference section is almost sterile in its lack of description. Printing gets exactly two pages, for example. There are printing tips scattered through the manual, but they are not in the index. Most of what should be in the reference section is instead tucked away in appendices. At one point the manual states that the Macintosh II will support "full-color," and that's the only mention you'll find of that (other than a tantalizing dialog box showing color selections such as Dusty Rose and Grape).

Xpress' "adjustments" to the standard Macintosh interface are annoying. Many menu selections have more complicated than usual key equivalents, such as COMMAND-SHIFT-B for Bold. Also, the backspace key cannot be used for deleting boxes, which instead require the use of the Delete command from the Item menu (COMMAND-K).

END OF THE LINE

Xpress is an excellent desktop publishing tool. Its use is not completely intuitive, but it isn't difficult to master—although things such as COMMAND-K instead of backspace to delete a box takes some getting used to (unless you're an *Excel* devotee). The range of features and the precision of layout it offers are impressive, and if its shortcomings can be overcome it will become *the* desktop publishing package. It's more expensive than other desktop publishing packages, although its feature list goes a long way toward mitigating the price. While the copy protection is unpleasant, the availability of an unprotected version for an additional fee is an acceptable alternative, although the preferred alternative would be no copy protection at all.

EXPLAINING THE RATING

Ordinarily our ratings speak for themselves. But *Xpress* posed some interesting problems. Based on a pre-release copy, we ran a Quick-Click of *Xpress* which provisionally gave it five mice. When the release copy arrived, we discovered the shortcomings described in this review, which caused the rating to drop slightly, to four and a half mice. The copy protection, which was also not present in the pre-release version, would have caused the rating to be lowered another full point, to three and a half mice, but Quark's Extended Support program substantially eliminates the problem, although at a cost of an additional $100.

Because of these sorts of inconsistencies between pre-release versions and the released versions, *MacUser* will no longer rate software until the official released version can be reviewed.

ROBERT WIGGINS HAS BEEN EVALUATING PAGE LAYOUT PROGRAMS FOR USE IN A PROJECT THAT HE'LL TELL US ABOUT SOON.

MACUSER RATING

Xpress 4½ mice

Follows Mac Interface	■■■■■
Printed Documentation	■■■■□
On-Screen Help	■■■□□
Performance	■■□□□
Support	■■■□□
Consumer Value	■■■□□

Comments: Powerful publishing tool with word processor-like features, color support and kerning. **Best Feature:** Can automatically run text around graphics objects. **Worst Feature:** Inability to move boxes from page to page. **List Price:** $695. Published by Quark, Inc., 2525 West Evans, Suite 220, Denver, CO 80219. (303) 934-2211. Mac 512E, Mac Plus or Mac II required; hard disk recommended. Copy protected.

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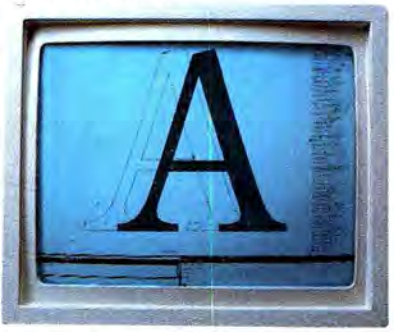

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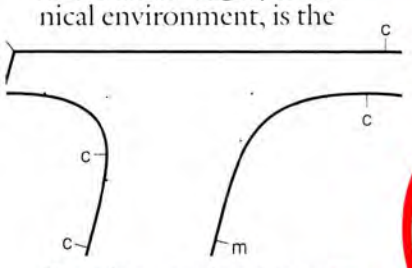

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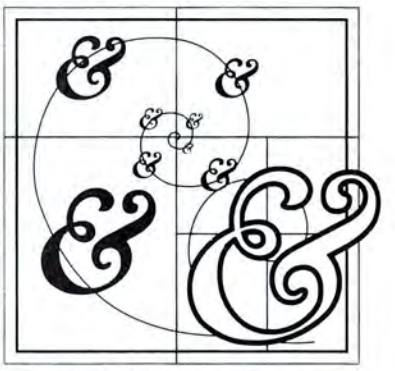

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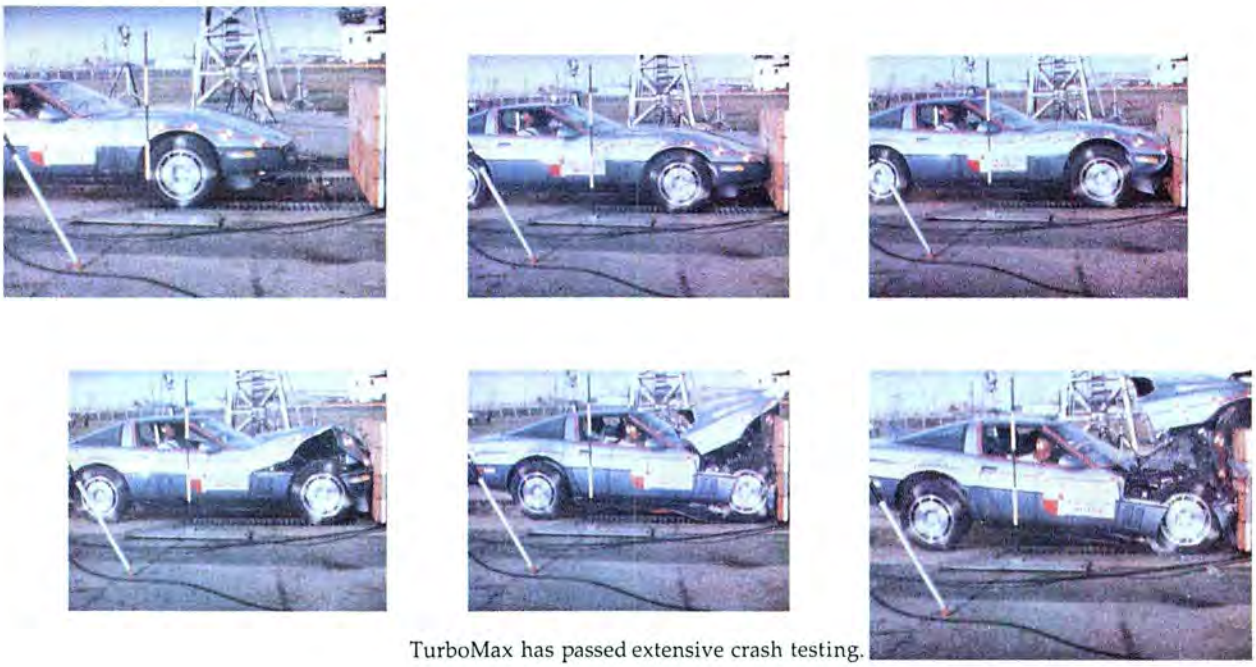
A Crash Course in Accelerator Boards.



TurboMax has passed extensive crash testing.

Listen carefully to the hype surrounding 68020 performance options available for Macintosh computers today.

Faster this.

Quicker that.

Nice, simple, glittering generalities about how fast they run. Now, take a look at the fine print. "*May not run properly with some programs*" or "*certain programs may have to be revised to function correctly*."

In other words, many of the programs you work with everyday simply won't work with 68020 add-ons.

They crash.

There is, however, an alternative. One that's 100% compatible with virtually every Macintosh program. **TurboMax**, a "clip-on" accelerator board for your Macintosh Plus or 512Ke.

TurboMax is more than your typical accelerator board. It's a multi-function hardware and software system designed to make you more productive—so you can finish your work sooner.

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You can also add a 68881 coprocessor (to speed up arithmetic computations—like spreadsheets—up to 60 times faster) and an internal 40Mbyte SCSI hard disk for fast, high-volume storage.

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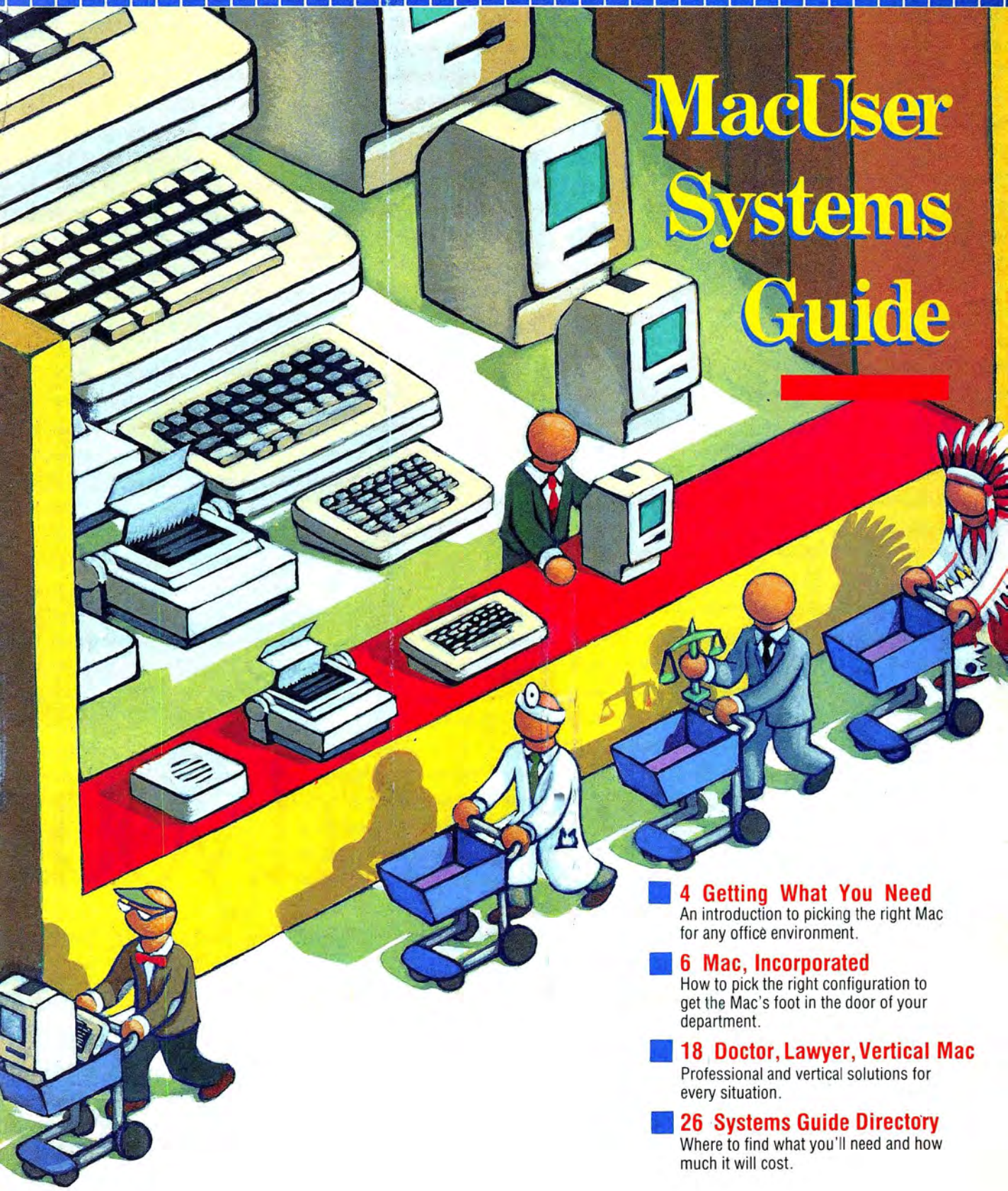
MacUser Special
SUPPLEMENT 6

MacUser Systems Guide



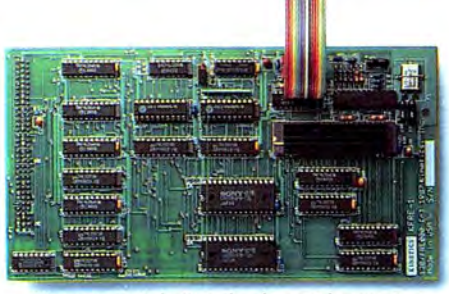
4 Getting What You Need
An introduction to picking the right Mac for any office environment.

6 Mac, Incorporated
How to pick the right configuration to get the Mac's foot in the door of your department.

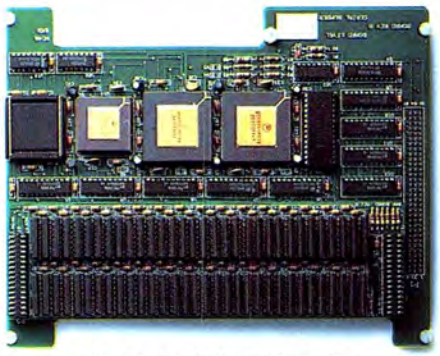
18 Doctor, Lawyer, Vertical Mac
Professional and vertical solutions for every situation.

26 Systems Guide Directory
Where to find what you'll need and how much it will cost.

Macintosh SE. The perfect place to start building—equipped with a built-in 20MByte hard disk (or a second internal floppy) and one internal expansion slot.



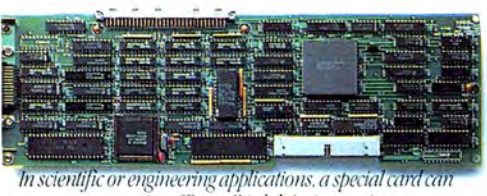
Plug a card into the SE and make a quick connection with mainframes and networks.



Floor it. In a Macintosh SE, a 68020 accelerator card gives you license to exceed the speed limit.

Add a 5.25" disk drive, and (with the right card) you can use information created on IBM or compatible PCs. Or run MS-DOS programs.

A new keyboard, re-designed for the new generation of Macintosh computers.



In scientific or engineering applications, a special card can connect an SE or a II to lab instruments.

The new AppleColor™ High-Resolution RGB monitor can create brilliant hues and true gray scale on your Macintosh II. In finely-detailed 640 x 480 pixel resolution. Also available: a 12" monochrome monitor.

How to build your

You've heard about them. You've read about them. By now, you've probably even seen them.

Our latest leaps in technology, the new Macintosh™ SE and Macintosh II personal computers, have been getting their share of press.

But to add to what you may already know, we'd like to tell you more about their most powerful feature: expandability.

It's something we made possible by adding expansion slots. So you can easily customize your Macintosh to meet the demands of any business.

You can, for example, set up a system that's perfect for major-league number crunching. Or add features to give you even greater power for Apple Desktop Publishing, like displays as big as 21 inches.

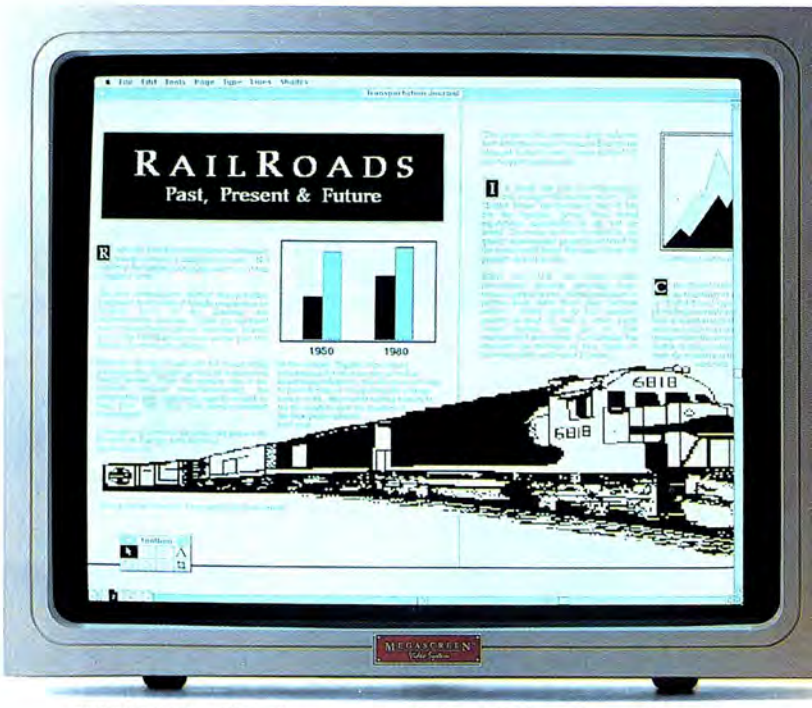
The SE sports one expansion slot.

While the Macintosh II takes the idea of expansion to the extreme—with six 32-bit NuBus slots. Which have the good sense to configure themselves, and require you to do nothing more than plug in the options of your choice.

Such as an 80286 co-processor card that lets you run programs written for MS-DOS computers. And a video card that produces near-photographic images

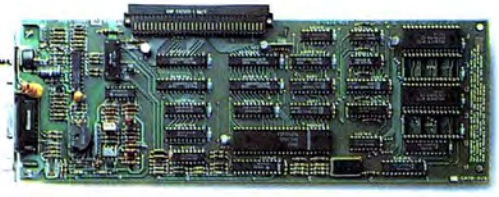
Presenting the Apple Extended Keyboard. Complete with 15 programmable function keys, as well as separate cursor and numeric keypads.

Via the expansion slots, you can add an AST co-processor card to either the SE or Macintosh II.



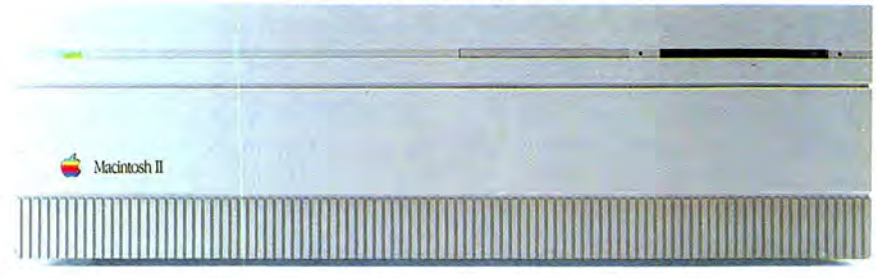
With either the SE or the II, a large-screen monitor (available from other manufacturers) can give you the big picture. And show you up to two pages at once.

Using one of the II's six slots, you can tie into the company mainframe or an office network like Ethernet.



If you lose it, you can't use it. The Apple Tape Backup 40SC safeguards the work on your hard disk. Pronto.

Build yourself a power station. The Macintosh II has a lightning-fast 32-bit Motorola 68020 processor, a 68881 co-processor and six NuBus expansion slots.



The Macintosh II Video Card can generate colors 256 at a time, at up to eight bits per pixel. Using a palette of over 16 million colors.

own Macintosh.

om a palette of over 16 million colors.

The new Macintosh computers are uilt to be customized in other ways, too.

You can set up your SE with up four megabytes of memory, so it has e power to run the most sophisticated rograms. And configure the II with up eight megabytes of memory on the ain board, or a walloping 1.5 gigabytes sing the expansion slots.

As for storage, there's plenty. With either computer, you get the option of an internal hard disk. Or an external one that can store up to 80 megabytes.

You can also choose between two keyboards. One of which has 15 function keys that come in handy when delving into special applications.

And as you might expect, we've done more than just give you a very good way to build the Macintosh of your dreams.

We've also arranged to make sure you have the perfect workshop: an authorized Apple® dealer.*

Where you can get some expert assistance choosing your options.

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Getting What You Need

Picking the right Mac is no longer a simple matter. But it doesn't have to be difficult, especially with the help of this section.

NOT LONG AGO BUYING A MAC was very simple. You decided that the Mac was the machine you wanted and you bought it. You really didn't have any choices. You bought a 512K Mac (or if you were really a pioneer—a 128K Mac), an external disk drive and an ImageWriter. There really were no choices. You added a modem, if you needed telecommunication ability. In any case, you got a good workable system with a minimum amount of time spent on the purchase.

Getting your new computer to the place where you intended to use it and setting it up were equally easy. There were few boxes and they were fairly small and light. Set-up was simply a matter of taking everything out, plugging the cables into the obvious and clearly indicated places and turning it all on. I remember typing on my first Mac within 5 minutes of getting it home (I was real excited about it). That was a touch quicker than average, which was around 10 minutes. Compare that with anything more complicated than a Radio Shack Model 100 laptop.

When the Mac Plus and SCSI disks appeared, new choices appeared with them. The Plus was a superior machine, and SCSI hard disks were clearly the efficient way to go in mass storage. Business users still had easy choices: Get a Plus and a SCSI hard disk.

A NEW APPLE WORLD

On March 2, 1987 the easy choices stopped. On that day Apple formally introduced the Macintosh SE and the Macintosh II. Both machines offered the opportunity to add and configure to your heart's content. The Mac II, in particular, offered easy expandability with its six slots (the SE has only one and getting at it requires opening the case, a chore best left to dealers and consultants).

With this new openness came a slew of announcements of plug-in boards to make your SE or II do nearly anything you could want or need. And these products are now starting to show up in quantity. MS-DOS compatibility? No problem. Get the right plug-in card and an external drive that reads 5 ¼-inch floppy disks. More speed in your SE? No problem. Get an accelerator card with a 16-MHz 68020 processor and 68881 math coprocessor. Need to run UNIX? No problem. Get a 68851 chip and Apple A/UX software. Really large data base files? No problem. You can get up to 32 megabytes of RAM in an SE and more than you can count in a II.

The problem is you now have to pick and choose among dozens of possible configurations (and soon there will be hundreds and even thousands of combinations available to you). And while the Mac has always been a good value for your dollar, it has never been a cheap machine. The new models are not inexpensive computers, and the plug-in boards, especially the more esoteric ones, can run into big bucks. A mistake can be very expensive.

GETTING A HANDLE

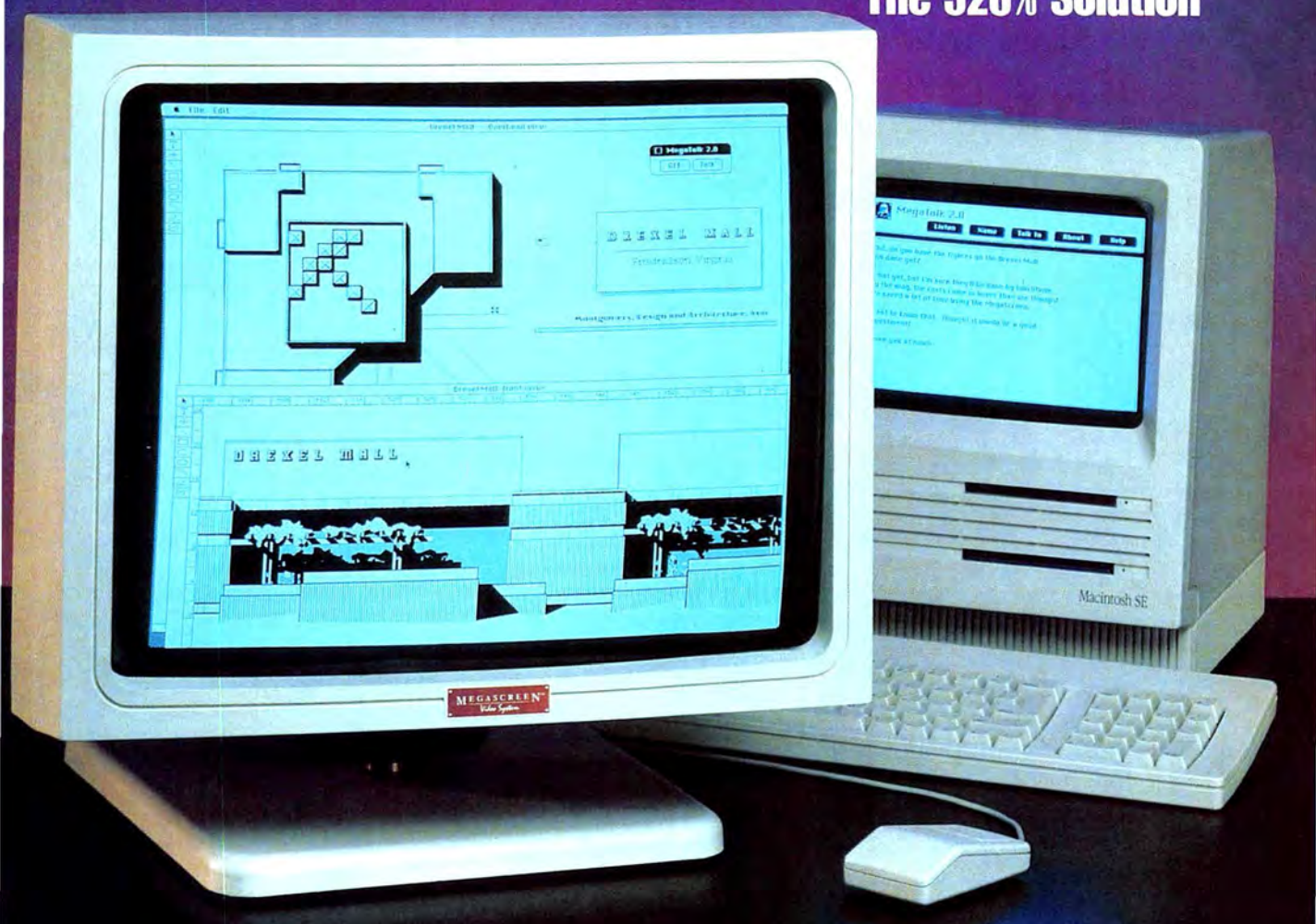
The remainder of this special supplement (it can easily be torn out and saved) is designed to guide you to the right hardware mix for your situation. We'll talk about software, but only in passing and only where the choices are clear. In general, you should decide what you want your computer system to do first, before you buy anything. Then you should read the magazines, visit computer retailers and talk to as many knowledgeable people as possible. Your questions should be aimed at finding out what software will do exactly what you want. And don't simply take someone's word for it. Try things out. Only after all that should you start thinking about hardware.

For many buyers—indeed, for almost all buyers—the new Macs will be high on the list of possibles. And they should be. They can do virtually anything an MS-DOS machine can, to the point of running the actual MS-DOS software if necessary. The only exceptions are in the area of multitasking where some of the clones have the ability to run several terminals simultaneously. Macs can't do that—yet.

BY STEVEN BOBKER

MegaScreen™

The 526% Solution



MegaScreen's 19.5" monitor gives you 526% more design space than your Macintosh™ Computer. Compatible with all standard Macintosh software, MegaScreen lets you see drawings, designs, page spreads, spreadsheets, and just about everything you ever wanted to see larger. 526% larger.

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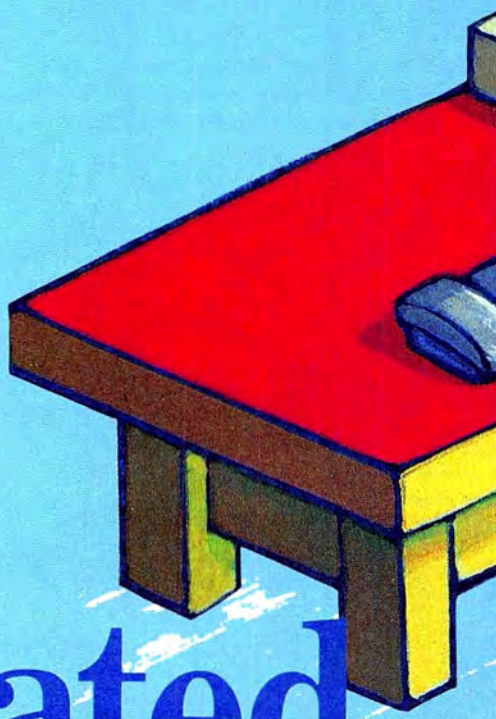


Mac, Incorporated

The best Mac configurations for your company, department by department.

BY ROBERT R. WIGGINS

YOU SEE HIS TYPE AROUND A LOT more these days. Blue suit. Yellow power tie. Bewildered look. An executive who is obviously not new to buying computers, but seems like a neophyte now because he's facing the Macintosh for the first time. Corporations are increasingly opening the door and letting the Mac in.

Maybe it was the Macintosh II. Or perhaps it was just inertia. But whatever the reason, the Mac is about to enter *your* corporation. And now you need to know what to buy. The Macintosh line has gotten complex, and there are more options than there were just a year ago. Here are some possible scenarios, and how and why they might work for you.

MIS DEPARTMENT

Management Information Systems should be the leaders in computer technology, but with micros MIS has often been the last to climb aboard. Now's your chance to get on top of things, while the Macintosh II is still young, untried and expensive, and especially since networking, a field the Mac is strong in, is becoming *de rigeur*.

Processors

The Macintosh II is the system of

choice for MIS. If you are also responsible for corporate support of micros, then you also need at least one Macintosh SE and one Mac Plus for testing purposes. The Mac II has a lot of options, and if MIS is going to lead the way, virtually all of them should be used.

Configure at least one Mac II with the video expansion kit for extended color and the color monitor. You may be tempted to get all Mac IIs and all with color, but this won't help you serve your clients better, since they'll mainly have SEs and Plusses, with smaller screens and no color.

If there is any interest in UNIX in the company, at least one Mac II should have the 68851 PMMU for use with *A/UX*, Apple's version of UNIX. If the company has been using IBM PCs, get a PC drive card for attaching a 5¼-inch drive so you can access PC diskettes.

The Macintosh SE has fewer options, but you should purchase a PC drive card for at least one SE, too. Also, if any users supported by MIS will be using accelerator boards such as the ones from Levco, Radius, Peak, GCC and others, then MIS should have these as well. Since an SE only has one slot for a card, you need either an experienced card changer or multiple SEs to handle multiple cards. [*Ed. Note: Most accelerator boards have provisions for adding more boards on top of them, but space is limited. GCC and Peak use the same 96-pin connector used in the SE. We hope this is the start of a trend.*]

Mass Storage

The Macintosh II comes with a choice of internal hard disks, and you should go for that convenience. The SE is available with a 20MB internal hard disk, desirable from the standpoint of portability. There are several external SCSI hard disks available from Apple which are usable with all three currently marketed Macintosh systems, and an even wider range of choices can be had from third-party vendors such as Jasmine, SuperMac, PCPC, GCC and others. SCSI tape backup systems are available from some third-party vendors, but these are new and have not been well-received. You may still want a SCSI tape backup if MIS will be supporting other departments who use them.

To read IBM PC files directly, the Apple PC 5¼-inch drive (requires the PC drive cards already mentioned. *Interfile* software can be used, or, with network servers such as *TOPS*, IBM PCs and Macs can share files directly.

Printers

If you need to support other departments with laser printers, then a LaserWriter Plus is in order. Even if that is not the case, the high-quality output should justify purchasing one for producing departmental reports to management. For color output, the AppleTalk ImageWriter (for shared use) or the ImageWriter II (for individual use) are available, although the quality of the color output does not begin to approach the quality of the LaserWriter's black-and-white output. You may still want some ImageWriters—to

Management Information Systems should be the leaders in computer technology, but with micros MIS has often been the last to climb aboard.

reduce the demand on the LaserWriter—for quick and dirty print work.

Communications

The Macintosh is an excellent communications engine. All three Macintoshes have built-in serial support for asynchronous communications. All that is needed is a modem and cable. This allows Macintoshes to access most popular minicomputers and some non-IBM mainframe computers. All three Macintoshes also have AppleTalk built in for networking, which can be accomplished with Apple's AppleTalk cabling, or third-party solutions such as Farallon's PhoneNet, which uses ordinary phone wiring.

AppleTalk networks can be linked, even remotely, using a product such as Hayes' InterBridge. There are also hardware solutions available for bridging AppleTalk to other networks such as EtherNet. Apple offers an EtherTalk card for the Macintosh II which can be used for connection to EtherNet, which is of interest to MIS departments using DEC equipment.

For MIS departments supporting IBM mainframes, the AppleLine controller has been available since 1984 for direct coaxial attachment of a Macintosh to a 3274 cluster controller. For remote attachment, the TriData Netway cluster controller is used with a synchronous modem to emulate a remote 3274. It allows up to 32 Macintoshes (of any type) attached via AppleTalk to be used as 3278 terminals, with up to four simultaneous host sessions per terminal. The Macintosh SE and Mac II have cards available from Avatar to allow coaxial attachment to 3274s.

Software

MIS departments aren't known for voluminous reports, so a simple word processor like *MacWrite* is adequate or *WriteNow* for slightly more advanced users. A spreadsheet like *Excel* is useful for doing departmental budgets or preparing graphs for reports. For more ambitious charting, use a package like *CricketGraph*.

For interdepartmental communications, consider a network message server such as *InBox* or *InterMail* which works over AppleTalk. For outside communications, most communications software for the Macintosh offers VT100 emulation, and there are specialized terminal emulators available such as *VersaTerm Pro* (Tektronix 4105 and 4014, Data General D200 and VT100) or *FrontEnd* (Data General D210). The 3270 hardware described above generally comes with appropriate software (*MacTerminal* in the case of the AppleLine unit).

ART DEPARTMENT

The art department is where the Macintosh first got its start in most companies. If you don't have a Macintosh in your art department, you should.

Processors

The Macintosh II is the machine you will want, for its color, but given the limited (so far) color output options and its expense, a Macintosh Plus or SE is a better value (and will be kinder on your budget). No matter which machine you select, add a large screen such as the Radius FPD or Big Picture to make full-page graphics and layout easier.

Mass Storage

If the Macintosh II or SE is selected, then one of the internal hard disks is the best choice. For the Plus, any of the available SCSI drives are acceptable. Since graphics files are large and there are an increasing number of clip art packages available, high capacity disks are best. To avoid duplication of large graphics files, consider a file server, but this requires additional support and may not be the best choice for a non-technical art department.

Printers

The 300-dot-per-inch resolution and graphics capability of the LaserWriter serves an art department's needs well, but the LaserWriter Plus, with its additional fonts and added memory for downloadable fonts, is the printer you really want.

If you absolutely have to have color output, or if you'll be doing much "draft" printing, the ImageWriter II is available. Since you will already be using AppleTalk for the LaserWriter, the AppleTalk ImageWriter is the preferred printer, since you can share it.

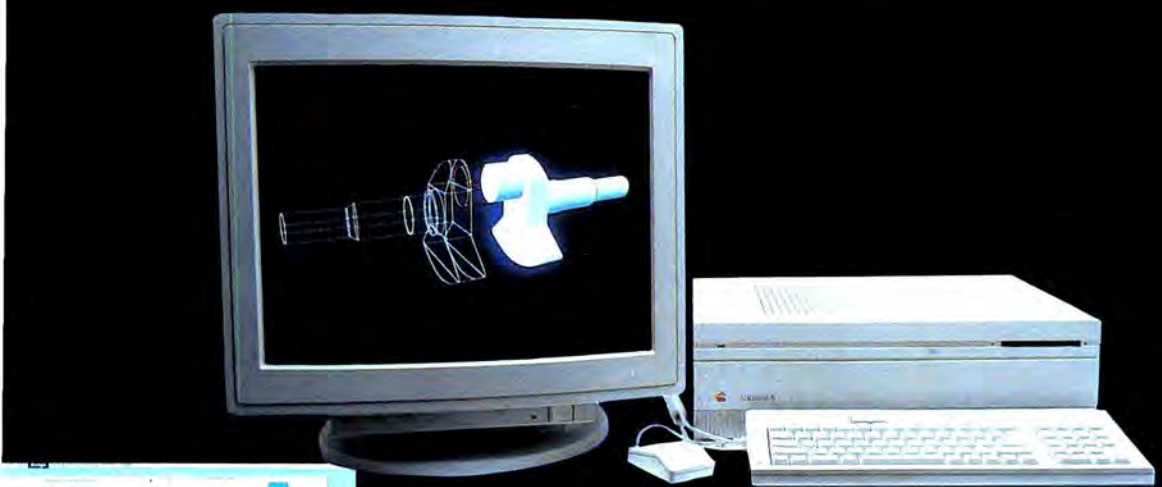
To communicate with the LaserWriter, the Macintosh uses a language called PostScript. Several typesetting machines, such as the Linotronic 300, which print at up to ten times the resolution of the LaserWriter, also understand PostScript. For a major in-house art department with a large budget one of these typesetters may be within reason, but your budget will probably keep these out of your reach. There are several software packages described later that exploit this equipment more fully. Even if you can't afford a typesetter, a growing number of printers are offering PostScript typesetting services.

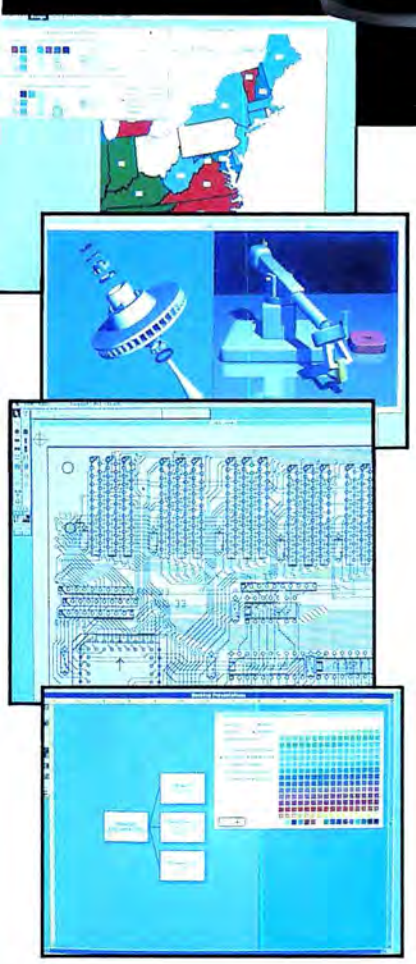
Color slide processors are becoming available for attachment to the Macintosh II, and while these are new, you should investigate them if you produce slides for presentations.

Communications

If you need mainframe access, see the options described under the MIS department communications options, and get the MIS department involved in the selection and implementation of anything more complicated than a simple asynchronous modem. Similarly, if you need intradepartmental networking using

The best color graphics system for the Macintosh II.





See the difference...know the reasons

You are about to enter a new dimension in personal computing with the PCPC II™, a high resolution color graphics system for the Macintosh II. The PCPC II 19 inch monitor gives you a giant window into the color world of computer aided design, computer modeling, advertising, presentation graphics, desktop publishing and unlimited color applications. Designed for the most demanding professionals, the PCPC II provides the power and performance required to be your creative best.

Look at a PCPC II and experience the sharpest and most vivid colors possible. Witness a dazzling display of 256 colors from a palette of 16.8 million hues for the most realistic images possible. And for monochrome graphics, 256 shades of gray provide maximum detailing.

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Now that you know the true colors of quality, don't compromise!

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For interdepartmental communications, consider a network message server such as InBox or InterMail.

products such as *InBox*, get the assistance of MIS.

Software

There is a wealth of graphics software for you to choose from. Buy at least one bit-mapped-oriented program such as *FullPaint*, as well as an object-oriented package like *MacDraw*, or a program that combines both such as *SuperPaint*. To take full advantage of the capabilities of the PostScript output devices, investigate products like *CricketDraw* and *Illustrator* (some art directors swear by *Illustrator*, which lets you "trace" bit-mapped graphics and scanned images to get full LaserWriter resolusion; others swear at it).

For company newsletters, or any page layout work at all, there are several software packages available, such as *PageMaker*, *Ready, Set, Go!* and *Xpress*. Each has advantages and disadvantages—for specific tasks one is better than another, so a well-heeled art department will want all three, but any one will do most of what you need.

For getting graphics images into the Macintosh there are a number of products that "scan" an image on paper or through a video camera to create a digital representation. These packages are a combination of hardware and software. No art department is complete without one. From the low-cost ThunderScan and MacVision to the high-end Abaton and DEST, there is a scanner for every budget. Buy the best one you can afford.

ACCOUNTING DEPARTMENT

Accounting is a natural for computers, what with all that number-crunching. While the main accounting work of the company is probably done on mainframes, you can still use the Macintosh as a combination terminal and calculator (well, maybe a bit more than a calculator).

Processors

The Macintosh II is the machine you will want because its built-in 68881 math coprocessor makes the most complex calculations zip right along. But budgets are budgets, and bosses are bosses, so forget it, and save your strength for the fight for a LaserWriter. There are accelerator boards for the Mac SE and Mac Plus to add math capability at a lower cost if all that is required is speed. The Mac Plus and Mac SE are also more portable if it's necessary to move the computer to other locations, such as during an audit. So be happy with your SE.

Mass Storage

To avoid losing important financial data because it was on an easily damaged or lost floppy disk, a hard disk is in order. An internal hard disk is desirable for a Mac SE, again for the portability value, although almost any hard disk will do for any of the processors.

Backup is important if any company records are kept on the Mac, so you may want a SCSI tape backup. There are some good programs for backing up hard disks to floppies also, but either way *you* have to remember to do the backing up. Don't forget.

Printers

The ImageWriter produces good enough output for internal use, but a LaserWriter is nice for any out-of-company correspondence, reports to management and for producing legible reduced output of complex financial spreadsheets. Your budget may not allow you the luxury of a LaserWriter, but it's worth fighting for.

Communications

To communicate with the firm's main computers, consult with MIS and select the appropriate option from those described under the MIS department. For intradepartmental communications, get an AppleTalk product like *InterMail*.

Software

Without a doubt the primary program for accounting use is *Excel*, for doing spreadsheet analysis and charting. For simple memos there are word processors such as *MacWrite* and *WriteNow*. For communications there are the products described under MIS.

MARKETING DEPARTMENT

The marketing department is a prime candidate for the Macintosh. Its visual interface and graphics capabilities combined with number-crunching power make it perfect for demographic analysis and complex charts and reports.

Processors

The Macintosh II's new and improved color capabilities and 68881 coprocessor make it the ideal choice for marketing. A Macintosh SE or Plus with an accelerator board will do some of the job, but without the zip that color adds. Your job is selling, isn't it? Sell the boss on the idea of a Mac II.

Mass Storage

Again, an internal hard disk or any of the numerous external SCSI drives available are recommended. And don't forget to back up your data.

Printers

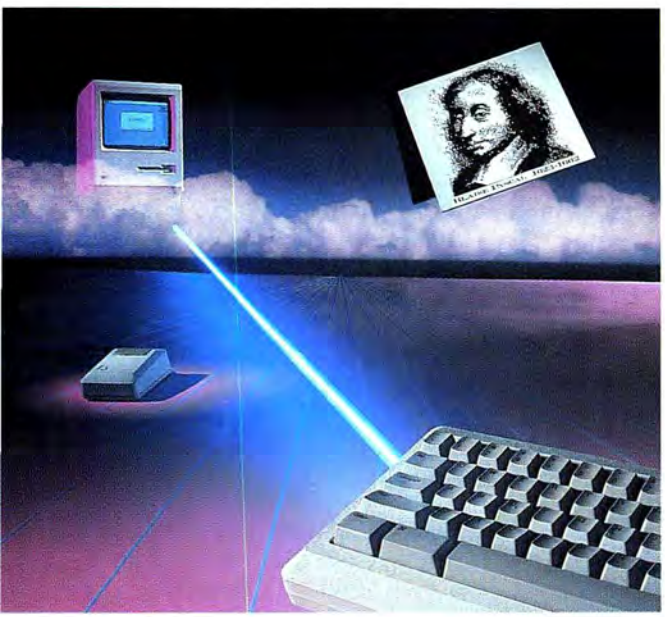
Since marketing produces a lot of charts and graphs, the LaserWriter is a good selection, and the LaserWriter Plus is better. For color charts, the ImageWriter II or AppleTalk ImageWriter provide acceptable lower resolution output, but you wouldn't want to show it out-of-house.

You should look into a color slide preparer, or, better yet, convince the art department to buy one, so that you can harness the color output of the Macintosh II for presentations.

Communications

Marketing should consult with MIS to determine which of the many

Borland's new Turbo Pascal Family makes programming fast and easy



Turbo Pascal® code compiles and runs at better than a sizzling 12,000 lines per minute. Its clear, logical design makes it easy to learn and use.

Turbo Pascal is truly compatible with Inside Macintosh, which means that you're on familiar ground—that's why so many Mac users have made it their standard. Best of all, it's only $99.95!

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A companion to Turbo Pascal, Turbo Pascal Tutor quickly teaches you how to program your Mac in Pascal! This interactive tutorial on disk and 700-page manual really show you how—from the basics to advanced programming on the Mac—in Turbo Pascal, MPW Pascal or any version of the language you're using.

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- You get source code on disk and a free sample database using the Mac interface that you can tailor to your specific needs.

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"Turbo Pascal is fast: 12,000 lines of good, compiled Pascal code in 60 seconds."

Howard Katz, MACUSER"

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BORLAND

The Macintosh II is the machine you will want, for its color, but given the limited (so far) color output options and expense, a Macintosh Plus or SE is a better value.

communications options are appropriate. But whatever MIS says, you should consider an asynchronous modem and simple terminal emulation program for use with the growing number of national data base services, some of which offer valuable demographic and other pertinent data.

Software

For data analysis, *Excel* is a great choice. There is also a vertical market demographic package available, *MapMaker*, for making demographic maps of the world, the United States by state, or U.S. states by county. *MacSpin* is another analysis aid for seeing patterns in very large series.

For presentation work, try the charting capabilities of *Excel*, perhaps in conjunction with some of the drawing programs outlined for the art department. There is also *MORE*, an outliner/idea processor that has some presentation capabilities, and *PowerPoint* which is designed for creating overhead and 35mm slides.

For reports, one of the simpler word processors such as *MacWrite* or *WriteNow* may suffice, since all Macintosh word processors allow text and graphics to be intermixed. For the really big jobs there are some industrial-strength word processors available such as *LaserAuthor* and *Word*, with more on their way, including *FullWrite Professional* and *Word Perfect*.

FINANCE DEPARTMENT

A recent Macintosh commercial showed "the hotshots from finance" carrying in their Macintoshes from home. There's a reason for this: The Macintosh is a superb tool for financial analysis, as well as financial presentation preparation.

Processors

You will be happy with nothing less than a Macintosh II with its color and high-speed math coprocessor, even though it's too big to carry home at night. You may have to settle for an SE or Plus with an accelerator board, but you should be pretty good by now at manipulating budgets to get what you want.

You'll want a big screen add-on, too, for looking at those large complicated spreadsheets.

Mass Storage

With so many numbers to crunch, a hard disk is almost mandatory. Either internal or external SCSI drives should be acceptable.

Your data is valuable, so you must back up your hard disk. If you can't find a SCSI tape backup that is acceptable, get one of the programs that back up to floppy disks. If your data is really critical, and you did a great budget-juggling job, consider a separate hard disk for backup.

Printers

The LaserWriter is almost a foregone conclusion, but consider the color capabilities of the ImageWriter II, too.

For those boardroom presentations a 35mm color slide preparer would be nice, although it is probably more cost effective for it to be in the art department and shared.

Communications

Like everyone else, you should consult with MIS for the best ways to attach to the company's main systems and share data. But a modem is a good idea to get to the national financial services and data bases such as the Dow Jones News Service.

Software

Once again, *Excel* comes up, since it is the best spreadsheet program available for any computer. Many *Excel* templates are available for relatively low cost through the Excellent Exchange. There is also a version of the *Interactive Financial Planning System* (IFPS) available for the Macintosh, called *Mindsight*, for financial modeling, which includes the capability of linkup with mainframes or minis running IFPS and sharing data (another reason for that modem). There are statistical packages available as well, such as *StatWorks+*, *Systat* and *StatView*.

For presentation work and reports, the same software recommended for marketing is appropriate. Consider *Cricket Graph* for chart preparation if *Excel* doesn't handle all your needs. *Trapeze* is an innovative "presentation worksheet," sort of a combination of *Excel* (including the charting capability) and page layout software, which can produce some very attractive reports and financial statements.

OFFICE AUTOMATION

The days of the steno and secretarial pools are gone at most companies, but many firms have some sort of a central support group for secretarial services, to help with selecting and evaluating word processing equipment and software and to assist in training. This isn't a "department" *per se*, but is the group that handles secretarial services.

Processors

The Macintosh SE and the Macintosh Plus are perfectly adequate for word processing and administrative functions, so there is no need for the extra expense of the Macintosh II, nor for any accelerator boards or cards. A big screen add-on, however, is almost essential to make the Macintosh useful as a word processor. The Radius FPD and the Nutmeg, which are both the size of one full 8 ½ X 11 inch page, are ideal for this purpose.

Mass Storage

While a hard disk is not essential, a small (20MB) hard disk is desirable for storing the system files, application software and some documents.

MultiTalk™ makes your AppleTalk®.

Presenting MultiTalk™ from Abaton.

Very few peripherals today, other than the Apple® LaserWriter,® can be shared by Macintosh™ users over an AppleTalk network. Which means higher-priced devices—such as modems, scanners, plotters, daisywheel printers and more—are limited to use by one person.

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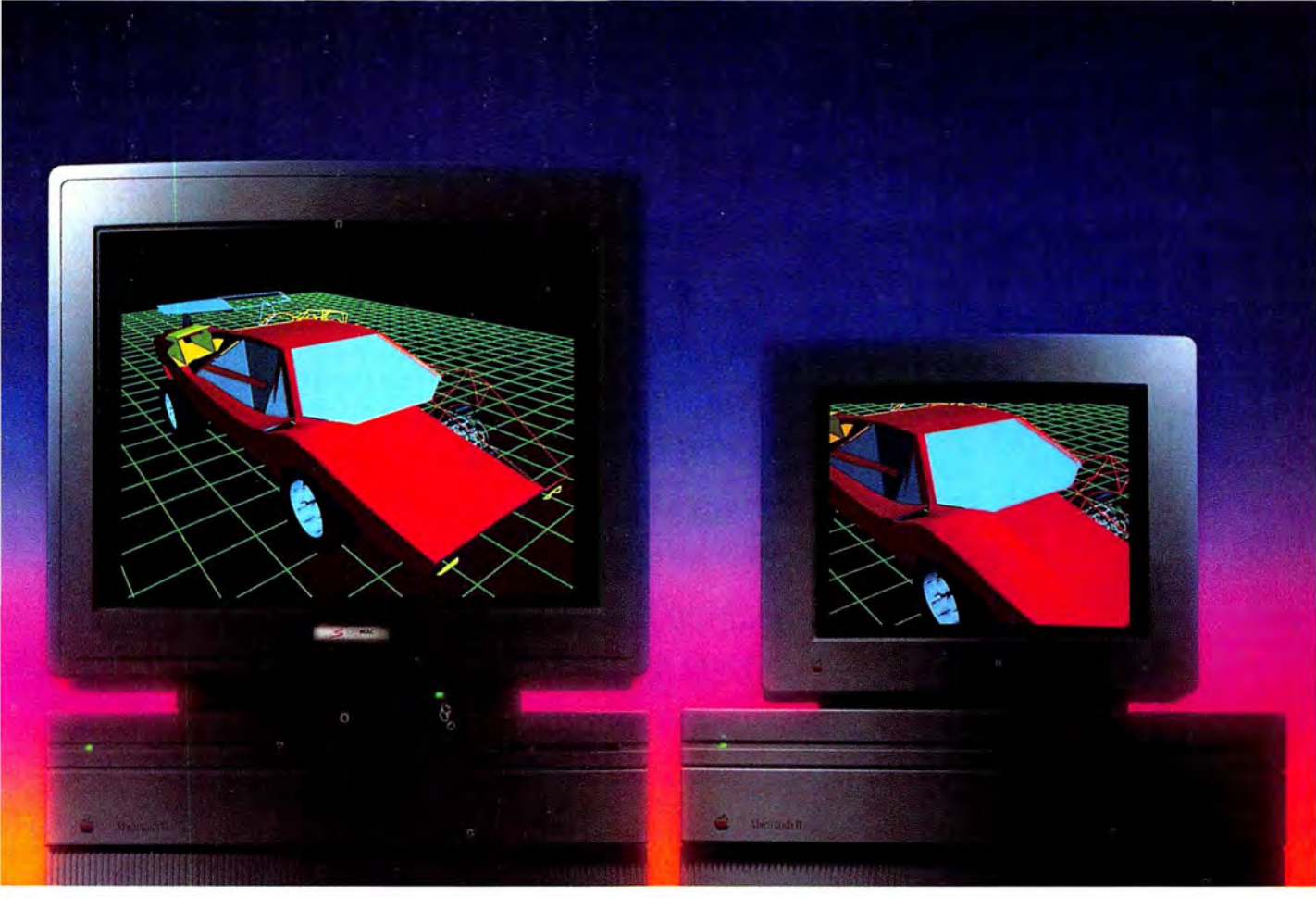
Making Your Choices

	MIS Department	Accounting Department	Marketing Department	Finance Department	Art Department	Office Automation
PROCESSORS						
Macintosh II	**Required**	**Recommended**	**Recommended**	**Recommended**	**Recommended**	**Optional**
Keyboard	Required	Required	Required	Required	Required	Required
Extended Keyboard	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
13" Monochrome Monitor	Required	Required	Required	Required	Required	Required
AppleColor 12" RGB Monitor	Recommended	Optional	Recommended	Recommended	Recommended	Optional
Video Card	Required	Required	Required	Required	Required	Required
Video Expansion Kit	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
1MB Memory Expansion	Recommended	Recommended	Recommended	Recommended	Recommended	Optional
2MB Memory Expansion	Recommended	Optional	Optional	Optional	Optional	Optional
Universal Monitor Stand	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
EtherTalk Card	Recommended	Optional	Optional	Optional	Optional	Optional
PC Drive Card	Recommended	Optional	Optional	Optional	Optional	Optional
68851 PMMU	Recommended	Optional	Optional	Optional	Optional	Optional
Macintosh SE	**Required**	**Recommended**	**Recommended**	**Recommended**	**Recommended**	**Optional**
PC Drive Card	Recommended	Optional	Optional	Optional	Optional	Optional
Macintosh Plus	**Required**	**Required**	**Required**	**Required**	**Required**	**Required**
MASS STORAGE						
Internal Hard Disks						
Mac SE internal 20SC Hard Disk	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
Mac II internal 20SC Hard Disk	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
Mac II internal 40SC Hard Disk	Optional	Optional	Optional	Optional	Recommended	Optional
Mac II internal 80SC Hard Disk	Optional	Optional	Optional	Optional	Recommended	Optional
External Hard Disks						
Apple Hard Disk 20	Optional	Optional	Optional	Optional	Optional	Optional
Apple Hard Disk 20SC	Optional	Optional	Optional	Optional	Optional	Optional
Apple Hard Disk 40SC	Optional	Optional	Optional	Optional	Optional	Optional
Apple Hard Disk 80SC	Optional	Optional	Optional	Optional	Optional	Optional
Other Disks						
Apple PC 5.25" Drive	Required	Optional	Optional	Optional	Optional	Optional
Other Media						
Apple Tape Backup 40SC	Recommended	Recommended	Recommended	Recommended	Optional	Optional
PRINTERS						
ImageWriter II	Recommended	Optional	Optional	Optional	Optional	Optional
AppleTalk ImageWriter	Recommended	Optional	Recommended	Recommended	Recommended	Optional
LaserWriter	Required	Recommended	Recommended	Recommended	Required	Recommended
LaserWriter Plus	Recommended	Optional	Optional	Optional	Recommended	Optional
COMMUNICATIONS						
Asynchronous						
Hayes 2400 Baud Modem	Recommended	Optional	Recommended	Recommended	Optional	Optional
USR 9600 Baud Modem	Optional	Optional	Optional	Optional	Optional	Optional
3270 Emulation						
Avatar Mac II 3270 Card	Recommended	Optional	Optional	Optional	Optional	Optional
Avatar Mac SE 3270 Card	Recommended	Optional	Optional	Optional	Optional	Optional
TriData Netway 3270 Controller	Recommended	Recommended	Recommended	Recommended	Optional	Optional
AppleLine Controller	Recommended	Recommended	Recommended	Recommended	Optional	Optional
Networking						
AppleTalk	Standard	Standard	Standard	Standard	Standard	Standard
Hayes InterBridge	Recommended	Recommended	Recommended	Recommended	Optional	Optional
Farallon PhoneNet	Recommended	Recommended	Recommended	Recommended	Optional	Optional



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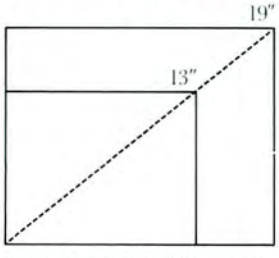

Spectrum offers double the visual area of Apple's color display. So you see much, much more of your work.

Because SuperMac video boards are programmable, you can even start small and upgrade later. Choose from Apple's 640 x 480 monitor, or choose an 800 x 600 multisync-type monitor for 50% more resolution. Or for the ultimate workstation, choose SuperMac's 1024 x 768 19″ workstation monitor.

See SuperMac video before you commit to *any* video for your Macintosh II.

Only SuperMac video gives you highest resolution.

Only SuperMac video gives you your choice of monitors, up to 19 inches.

Only SuperMac video runs all the standard Macintosh software *and* A/UX, Apple's implementation of the UNIX operating system.

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The marketing department is a prime candidate for the Macintosh. Its visual interface and graphics capabilities combined with number-crunching power make it perfect for complex charts and reports.

Printers

A laser printer is the only choice that will produce the quality necessary for external letters. The ImageWriter II is adequate for internal-only memos. The expense of a laser printer requires that it be shared, which may cause some problems due to cabling requirements.

The major problem with the Macintosh as a word processor is the lack of affordable high-quality printers. Standard daisywheel printers cannot be easily used because they require special software (called drivers) and cannot print the graphics that are the reason most companies bought the Macintosh in the first place. There have been frequent rumors about a forthcoming Apple product called a BusinessWriter which is said to produce high-quality output using a very small and dense dot-matrix printhead. Such a product would be a boon for firms wanting to use the Macintosh for simple word processing, but the product remains only speculation.

Communications

For the most part, there is no real need for communications capability in a Macintosh intended for pure secretarial use. A major exception is a secretary for a department which is networked using AppleTalk (or another network), where the secretary needs to be on the electronic mail exchange to share documents with other department members. Another exception is in a company or department that uses either a mainframe communications system (such as IBM's PROFS system) or an outside electronic mail system, in which case the secretary would require some sort of mainframe connectivity via a card or a controller such as the Netway for the former case; or an asynchronous modem and communications software for the latter case.

Software

The other reason the Macintosh has not taken the world by storm as a word processor has been the absence of professional quality word processing software. This is finally beginning to change.

MacWrite remains an easy-to-learn, easy-to-use word processor, with *WriteNow* as its more fully featured big brother. But until recently, only *Word* 1.05 offered more advanced capabilities such as mail merge. Now there is *Laser Author*, a full-featured (though difficult to learn) word processor, and *Word* 3.0, which has even more features, is even more difficult to learn, and is often difficult to use. Coming soon (perhaps available by the time this reaches print) are *Word Perfect*, a Macintosh version of the popular IBM PC word processor, and *FullWrite Professional*, an all-new Macintosh-only word processor with a very long feature list.

THE CORPORATE SOLUTION

With all of its options, the Macintosh has truly become a corporate solution. Every department in the corporation can benefit from using Macs, and some can achieve fantastic productivity gains.

Whether as a standalone system, a mainframe terminal, a networked work group or a desktop publishing center, the Macintosh has got what it takes to earn its pinstripes.

ROBERT WIGGINS IS THE CONTRIBUTING BUSINESS EDITOR OF MACUSER AND THE EDITOR AND PUBLISHER OF THE MACINTOSH BUSINESS LETTER.

Ten thousand pages, take it or leave it.

For those of you going places, here's a little something that solves big storage problems in the time it takes to say "who has the Farnsworth financial files?"

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A rather revolutionary Bering 20 mb Bernoulli compact disk drive system for Macintosh computers. And, the first truly *portable* 5¼" system. One that lets you tote around 10,000 pages of data on a sleek cartridge about the size of a piece of bread.

Translated, that's 25 times the storage you get on one standard floppy.

Yet unlike floppies, the Totem is no slouch for speed. It's just as fast as a hard disk. In fact, your computer will think it's a hard disk. You can even share it with co-workers. And its advanced Bernoulli aerodynamics make it resist head crashing. If you've ever used hard disks, you know what a pain that can be.

But the real beauty of Totem is that it fits perfectly right under your Mac. No mess. No fuss. And no extra hardware to buy. To add storage, just pick up another Totem cartridge.

Last, but certainly not least, there's a whole family of Totem drives to choose from. They're all in the brochure. To get yours, write or call Bering Industries, Inc., 280 Technology Circle, Scotts Valley, CA 95066. Inside California, call 800 533-DISK. Call 800 BERING 1 outside California. Just say "I'll take it."

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Doctor, Lawyer, Vertical Mac

Making the Mac a valuable member of your profession is easier than you might think.

BY STEVE BIRCHALL

THE MAJOR CHANGES TAKING place in the microcomputer world directly affect your strategy for buying computers. "Connectivity" is the buzzword that expresses the latest stage in the evolution of technology. We used to talk about "personal computers" as standalone machines. They helped make us more productive and did wonderful things we could never do before, such as desktop publishing.

Now that the problems of transferring data from one machine to another are being solved, personal computers are not merely friendly, but downright sociable. Macs are not only able to talk with other Macs, but also with IBM PCs, DEC, Vaxen and mainframes. We are on the threshold of another revolution in convenience, efficiency and productivity.

Professional offices and small businesses have usually purchased microcomputers just to use as standalones. But they are the work groups that the new generation of interconnectable computers serves best. Here's an easy example. A desktop publishing group has a person who writes copy, another who edits it, another who provides illustrations and yet another who creates the design and page composition.

Obviously, being able to send work in progress from one person's computer to another speeds up the process and improves the quality of the final product. The page designer can ask the editor or copy writer for help with subheads needed to break up a large block of text, or for help in eliminating "widows" and "orphans." The illustrator can send sketches for comment and get meaningful help before the drawing is cast in stone. The page designer can ask

the illustrator to add graphic interest where it's needed.

A desktop publishing group working together on-line can blow the competition out of the water. Add the convenience of electronic mail to take care of phone messages and other informal chit chat, and you have a real powerhouse of productivity. In planning for a computer system, think of your computers not so much as isolated machines, but as elements in a larger system.

THE HARDWARE MIX

Typically, people don't always agree on what the best computer is. But to place computers in a network, they all used to have to be the same. Not anymore! Consider the situation of four attorneys joining together to start a new law firm. One partner has an IBM PC, another a Compaq, the third a Macintosh SE and the fourth has yet to make use of a personal computer.

The Compaq owner is a dyed-in-the-wool fan, and loves Microsoft *Word (PC)*. Besides, he likes the Compaq's "portability." The IBM owner, also an MS *Word* fan, isn't willing to learn a new word processor, much less a new computer, and together, they're pushing hard for an all-MS-DOS office. The Mac owner is an evangelist and presses hard for office-wide use of the Mac and a LaserWriter. If the company goes to an MS-DOS standard, they won't have enough money for a laser printer of any kind.

Can they talk? You bet—all they need to do is put an AppleTalk card in both the Compaq and the PC, wire them all together with the Mac and they'll have a functioning network. With the money they saved by not having to buy a lot of new equipment, they can buy the laser printer immediately, and subsidize a Mac for the fourth partner.

Software such as Centram's *TOPS* enables the Mac and MS-DOS computers to exchange data, and DataViz' *MacLink Plus* can translate an MS-DOS data file into its Mac equivalent, and back. *PageMaker* 2.0 and Microsoft *Word* 3.0 can read files created by their MS-DOS versions, and vice versa. A version of

the relational data base manager *Helix* bridges the Mac/VAX gap. With software like that, computers will have so much fun talking to each other, we won't be able to shut them up.

WHICH MAC TO CHOOSE?

You can choose any member of the Mac family, and it should perform well. But each has its particular strengths, so you must consider your needs. Currently, three different Macs are *really* on the market: the Mac Plus, Mac SE and the Mac II. There are still 512K Enhanced Macs, but the difference in performance between 512K of RAM and the megabyte found in the Plus more than outweighs any difference in price. From a business standpoint, the Mac Plus is really the entry level machine.

The basic issues affecting any decision among the three machines are speed, power, cost, expandability and portability. In addition, color becomes a factor when considering the Mac II.

The Plus and the SE both use an 8-MHz Motorola 68000 processor. Through some clever manipulation of video processing and improved relations with floppy and hard disk drives, the SE has a speed advantage over the Plus. It also has a built-in fan, and a beefed-up power supply provides better support for an internal hard disk. Each comes with 1 megabyte of RAM but this can be expanded to 2, 4, even 8 megabytes. Both machines can be brought up to Mac II speed with accelerator boards from third-party manufacturers.

The Mac II starts out with a 16-MHz Motorola 68020 and a 68881 math coprocessor, so the speed differences between it and the plain Plus or SE are astounding—as much as hundreds of times faster, depending on the application. Because of the Mac II's speed and six expansion slots, it becomes the machine of choice for engineering, testing and scientific or medical research. In CAD/CAM, architectural and graphics design applications, the Mac II is also the machine of choice. The number crunching power of the 68020 gets the resolution, speed and color needed, especially for three-dimensional viewing.

Now that the problems of transferring data from one machine to another are being solved, personal computers are not merely friendly, but downright sociable.

You can make use of the Mac II's slots to plug in cards for data acquisition equipment (pressure, temperature, stress and light sensors for example) and then use the Mac to analyze the data. Mac-based systems using programs like National Instruments' *LabView* or GW Instruments' *MacADIOS* currently are used to monitor and even operate manufacturing processes.

You can bring a Plus or an SE to very nearly Mac II performance levels with expansion cards. The Mac II is not easily moved from place to place, so if portability is important—as it might be to a field engineer—an SE loaded with RAM and a 68020 board might be a better choice.

Now there also is a true portable choice, provided by Dynamac and Colby. These companies build laptop Macintoshes with internal disk drives and hard disk options.

EXPANSION

Some applications, such as spreadsheets, are extremely memory intensive, and you will want to load your Mac with as much memory as you can afford if you need to juggle monster spreadsheets. Graphics and music software also are memory hogs because their data files are large. Scanners can generate a megabyte of data from one 8 ½ X 11 inch black and white page. A few minutes of digitized sound can do the same. A computer doing double duty as a network file server and as a user workstation needs the extra memory.

STORAGE EN MASSE

Although you can get by with two 800K floppy disk drives, a hard disk is better and more convenient for a number of reasons. It stores and retrieves data faster than floppies, and holds many megabytes of data instead of mere kilobytes. If you need to store very large documents, especially graphics files, then a hard disk becomes a necessity.

You can order the SE and the Mac II with a built-in hard disk, which offers the advantage of slightly more efficient connections to the microprocessor, thus slightly faster input and output than from an external drive. The combination is a more portable package than a separate drive with a Mac. Third-party internal drives are also available, and often provide better performance at a lower cost than the Apple-supplied drives.

The market is also full of excellent external hard disk drives that connect to the Mac's SCSI port. The prices are coming down gradually, and some 20 megabyte hard disks are within a few hundred dollars of the Apple 800K floppy disk drive.

If you use a hard disk, a tape backup system is almost a requirement as well. Of course, that increases the cost of your hard disk system, but if it prevents the total loss of valuable data destroyed dur-

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ing a power outage or some other catastrophic failure, you won't regret having spent the extra money. Tape backup is faster and more convenient than backing up to large quantities of floppies. You'll be more likely to make a backup every day if the process is automated and takes only

4 or 5 minutes than if you have to go through a more laborious process. In a small business, the daily savings in time could pay for itself.

Optical disk storage is still in its infancy. In the near future, you'll hear more about two types—CD-ROM and WORM (Write Once, Read Many). Will you need a special adaptor, or a driver card to use a CD-ROM or a WORM drive? Your Mac already has it; it's called a SCSI port. SCSI CD-ROM drives are available from Denon, JVC, Philips, Sony and Toshiba, while WORM drives have been available from Lo-Down (in 400- and 800-megabyte sizes) for a while.

The CD-ROM is the familiar digital audio-compact disc, but adapted to store computer data instead of music. In either audio or data form, these optical discs can't record data; they can only retrieve it. But, with a capacity of 550 megabytes on a 4¾ inch disc, CD-ROMs are great for holding reference material such as clip art files, comprehensive dictionaries in several different languages, medical and technical journals, government regulations or the laws of a state. The CD-ROM has two advantages over printed storage media: The search and retrieval process is speedy, and the data files are already in computer form.

Small businesses can become highly competitive by using CD-ROM data bases for research. Medical and legal offices will find CD-ROMs especially useful. For example, a doctor could ask the Mac to describe the possible side effects of a particular drug. If the drug poses a problem, the Mac could quickly search the data base to find an alternative.

Think of your computers not so much as isolated machines, but as connected elements in a larger system.

An attorney could search for all the legal precedents that apply to a particular case. An architect could use a standard library of drawings and modify them as needed, or refer to tables of strength values for various materials.

If you need to *store* very large amounts of data and if you don't need to change information once it has been saved, then you might consider a WORM disc. This is a 5-¼ inch disc, and data recorded on it can't be changed or erased, which can be a distinct advantage. An obvious application for WORM drives is in accounting, where an audit trail is essential and you can't change data already posted.

In scientific and medical research, an unalterable record of data from experiments is a valuable way to establish credibility. WORM drives are popular in CAD/CAM work simply because they hold so much data, and CAD/CAM files are big.

Waiting in the wings is the data version of Digital Audio Tape (DAT). DAT-RAM is a read/write tape medium capable of holding 1.5 gigabytes (1500 megabytes) on one tape.

THE PAPER CHASE

Choosing a printer for a Mac work group is easy, right? If you need high-quality output, you need a laser printer. If $5,000 or so is too steep a price, you may have to settle for an ImageWriter, or spend lots of time (and money) at the local print shop using their LaserWriter.

Although that was the case in the past, many of the laser printers, daisywheels and dot matrix printers intended for the IBM market have acquired Mac compatibility. The current generation of dot matrix printers can produce crisp output, nearly as good as a daisywheel, but with font and style changes, and graphics.

A PostScript laser printer obviously is the better choice for those who can afford it. The quality of its output can do wonders for the perceived image of a small business. Letters, reports, proposals, contracts and other documents printed on a LaserWriter (or one of its competitors) scream PROFESSIONAL to all your clients. They give even a two-person operation an impressive "Downtown" image because of their crisp quality. For desktop publishing operations, graphics design houses, architects and CAD/CAM, a laser printer is not a luxury, but a necessity. And you now have several to choose from.

Laser typesetters such as the Linotronic 100 and 300 are even better (and dramatically more expensive). These are high-end machines for the publishing industry—but they read Mac files (including graphics) and print them out at 1270 or 2540 lines per inch resolution, instead of only 300 lines per inch. Many firms around the country offer this kind of service. For serious desktop publishing, you'll want to make your final camera-ready printouts on the Linotronics. Your humble LaserWriter becomes a real cost-saver because you can do all your proofing on it, before paying for the high-resolution printout. In publishing, architecture, graphics design and CAD applications, the Linotronic's higher resolution and ability to print on wider and longer paper are valuable capabilities.

Plotters are especially useful for some applications and high-end Mac design software almost always supports the most common plotters. Plotters can produce color output,

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an important factor for Mac II users to consider. The weakness of plotters is their inability to reproduce high quality text, except for short labels in a drawing, and the slowness with which they reproduce a large page. Color laser printers are looming on the horizon, but they aren't on the market now.

Before leaving the topic of output devices, we should consider audio and video equipment too. Beyond having its own synthesizer, the Mac is a wonderful controller for MIDI synthesizers. Also, the Mac II with the right card could become an outstanding digital audio editing machine. Anyone who has seen the Apple demo program for the Mac II has a good idea of what business presentations will be like in the future. Charts and graphs won't be enough; you'll need spoken voice, sound effects and music, too.

Desktop advertising is likely to become an important new Mac application. Advertising agencies will be able to produce finished TV commercials in their own offices, without ever going near a recording studio or a sound stage. Already, entire albums of music have been made with a Mac and a group of synthesizers. Since the Mac can produce animated graphics in color and music and sound effects from a MIDI synthesizer, the cost of producing animated TV commercials will be substantially lower than it is now for similar productions. For productions involving live actors, the agency could produce animated story boards, complete with music, to present the concept to a client in an extremely convincing way.

The CD-ROM is the familiar digital audio compact disc, but adapted to store computer data instead of music.

"I NEED INPUT"

A scanner is the flip side of the laser printer. Combined with a computer, image scanners can enlarge, reduce and even help you touch up or re-draw an image. Add a modem and a similar system at the other end of the phone line, and you have a long distance copy machine. The next development in scanners is Optical Character Recognition (OCR). These devices can read text from a scan of a page and produce output that you can edit in your word processor.

The thing to remember about scanners is that they typically generate monstrous data files. To make effective use of scanner technology requires large amounts of RAM and really cries out for the speed of the 68020.

Another way to get images into the Mac is to use a digitizer, a video camera with circuitry that turns the analog video signal into digital ones and zeros. Scanners basically do the same, but their "camera" is a simpler, more specialized device. The advantage of using a video camera is that you can digitize things you can't cram into a scanner—like people, for instance. If you already have a good video camera, you'll only have to buy the digitizer.

An especially clever variant on the scanner is the ThunderScan. By disguising the scanner's eye as an ImageWriter ribbon, this company made use of the printer's mechanism to move the eye back and forth, and advance the image one scan line at a time. It only works with things you can put into the printer, and you will spend some time cleaning up the scanned image with FatBits, but it works remarkably well.

Graphics tablets are relatively expensive input tools, but many artists and designers prefer them over the mouse because they give finer detail as well as the familiar feel of the pen or brush.

High-end mouse devices use an optical mouse and a special pad to give high resolution graphics. Track balls also offer advantages over the mouse in moving the cursor around a screen; they aren't necessarily just for arcade games. For graphics work, they save time and money.

Barcode readers don't deal with images so much as they deal with numbers. A familiar example of barcodes is the Universal Product Code used in supermarkets and the ISBN code on books. Any business that deals with a high volume of different objects should look at barcode readers. The obvious example is the

Checklist For Workstation Configuration

As you begin planning a computer system for your business or work group, consider what each computer in the system must do, and what that means in terms of its specific configuration. This checklist is a general guide to finding those requirements. Add other factors if they apply to your intended uses.

- Memory
  - Standard megabyte
  - Expanded to 2 or 4 megabytes
  - Mac II with extended memory
- Local Peripherals
  - Two 800KJ Floppy disk drives
  - Local hard disk
  - ImageWriter
  - Graphics tablet
  - Barcode reader
  - Thunderscan
- Shared Peripherals
  - System Hard Disk
  - LaserWriter
  - Scanner
- Expandability
  - SCSI and Serial ports (Mac Plus)
  - One slot (Mac SE)
  - Six slots (Mac II)
- Monitors
  - Big Screen
  - Normal
  - Color (Mac II only)
- Version of ROMJ (only if using AppleTalk)
  - Older 128KJ-ROM
  - Newer 256KJ-ROM

video rental shop, where barcodes on the tapes expedite the process of checking tapes in and out. But any small business inundated with lots of "things" (for instance, patient or client file folders) can benefit from using barcodes to keep track of them. Mail order operations are another good application.

Cauzin Softstrips are a form of barcode, too. You can pack quite a

lot of information into a series of Softstrips, and simply mail them. One advantage of transporting data on Softstrips is that they aren't affected by magnetic fields or airport x-ray machines.

Still another type of input device has little to do with images: data acquisition. Several companies make data acquisition equipment, including GW Instruments and National Instruments. With these devices, you can, for example, put a thermal probe into a manufacturing process or scientific experiment, and let your Mac collect the data. Later you can extract that data and analyze it with a spreadsheet or a statistical analysis package such as *Parameter Manager* or *MacSpin*.

Audio digitizers are useful for voice mail systems, adding sound effects to games, and for advertising work. The eight-bit digitizers currently popular are noisy, but CD-quality 16-bit digitizers generate mountains of data.

DISPLAY DEVICES

The Mac's small screen is both a benefit and a drawback. It keeps the size and weight of the Mac down, but it also keeps you from seeing a full page of text, or an entire drawing. For desktop publishing, graphics design and engineering drawing, a larger screen becomes a necessity. Although you can get along without a large screen, you'll find the convenience of being able to see the big picture worth the expense. Options range from tall, vertical screens that show one full page, to wider screens that can show facing pages. The ability to see facing pages can be crucial for desktop publishing and engineering design work.

If you need to store very large amounts of data and if you won't need to change information later, then you might consider a WORM.

An important point, though, is the difference between a display that is simply a larger version of the standard Mac screen (such as the PDS Big Mac Monitor, or what a video projector displays), and a device that displays a larger area of a document or drawing. Larger screens are expensive because the Mac requires much finer resolution than a standard TV picture tube.

THE DREADED SURGE

The more your business depends on your computers, the more susceptible you are to problems of power surges, momentary spikes of power, brownouts and outages. Spend a few bucks on surge protectors to protect your expensive electronics from the power company's little indiscretions. Even if you're fully insured and can get your equipment repaired at no cost, you don't want the inconvenience caused by lost data, damaged files and several lost days of work while the stuff gets fixed.

Few small businesses can absorb much lost productivity, so surge protectors are a good investment. If you use modems, phone line surge protectors can save your entire computer network from a lightning strike on the phone lines in your neighborhood. If power brownouts or complete outages are common in your area, you should consider uninterruptible power supplies. They aren't cheap, but they are a worthwhile investment in some situations.

FURNITURE

It may seem silly, but proper furniture is essential because worker comfort affects productivity. This is even true if you work at home. Good computer furniture isn't necessarily expensive, but you can't work extended hours week after week with your computer sitting on the kitchen table, your behind on an unpadded wooden chair and an overly bright light overhead. Don't expect your business partners or employees to labor under such miserable conditions either.

Each person's body has different dimensions, so tables, chairs and lights that are adjustable are the key to comfort. Swivel and tilt stands for the Mac are a good idea in many situations. Also, glare filters can prevent considerable amounts of squinting at the screen—and the headaches that result. Just by eliminating this source of annoyance you may be able to improve the working atmosphere in your office.

THE END UP

The basic strategy for a small business is to spend money on equipment that saves time and money. Avoid the temptation to buy the same equipment for every workstation. With a variety of Macs to choose from, you can optimize your investment by carefully evaluating each person's needs. Also, by using the network to share peripherals such as laser printers, scanners and hard disks, you'll make your hardware work harder.

STEVE BIRCHALL IS A TECHNICAL WRITER AND FORMER EDITOR-IN-CHIEF OF DIGITAL AUDIO. HE IS DIRECTOR OF PUBLISHING SERVICES FOR KOTTWITZ AND ASSOCIATES IN NEW HAMPSHIRE.

Directory

CPUs

Macintosh 512E, 68000-based Mac with 512K RAM, one 800K internal floppy disk drive, built-in 9-inch monochrome monitor. Supplied with mouse and keyboard. Interfaces include two serial ports, one external floppy disk connector, SCSI peripherals port. $1699.

Macintosh Plus, 68000-based Mac with 1 megabyte of RAM, one 800K internal floppy disk drive, built-in 9-inch monochrome monitor. Supplied with mouse and keyboard. Interfaces include two serial ports, one external floppy disk connector, SCSI peripherals port. $2199.

Macintosh SE, 68000-based Mac with 1 megabyte of RAM expandable to 4 megabytes, option of two 800K internal floppy disk drives or one 800K floppy and one 20-megabyte internal hard disk. Built-in 9-inch monochrome monitor. Mouse included. Keyboard (two models available) extra. Interfaces include two serial ports, one external floppy disk connector, SCSI peripherals port, two Apple Desktop Bus ports. Also has one slot inside for the addition of expansion cards. $2769 for two floppy drive version, $3569 for 20-megabyte hard disk option.

Macintosh II, 68020-based open Mac, with 1 megabyte of RAM expandable to 8 megabytes on the mother board, theoretical limit of 2 gigabytes using slots. 68881 floating point coprocessor is standard for increased calculation speed. 68851 Paged Memory Management Unit is optional. One 800K internal floppy disk drive is standard. Internal hard disks of 40 and 80 megabytes or second internal 800K floppy are optional. Interfaces include two serial ports, one external floppy disk connector, SCSI peripherals port, Apple Desktop Bus. Also has six NuBus slots for expansion. Video controller card and monitor are sold separately, as is the keyboard. Full color support and stereo sound built in. $3769. $5369 with 40-megabyte hard disk. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

Dynamac, portable Macintosh with electro-luminescent screen, built-in 800K floppy drive. $4995. Optional internal hard disks of 20 megabytes ($5844) or 40 megabytes ($6490). Dynamac Computer Products, 1536 Cole Blvd., Golden, CO 80401. (303) 233-7626.

Lap-Mac, Macintosh portable that displays on a 10-inch gas plasma screen. Optional removable cartridge drives of up to 100 megabytes. $4995. Colby Systems, 4723 N. Warren, Fresno, CA 93705. (209) 222-4985.

Keyboards

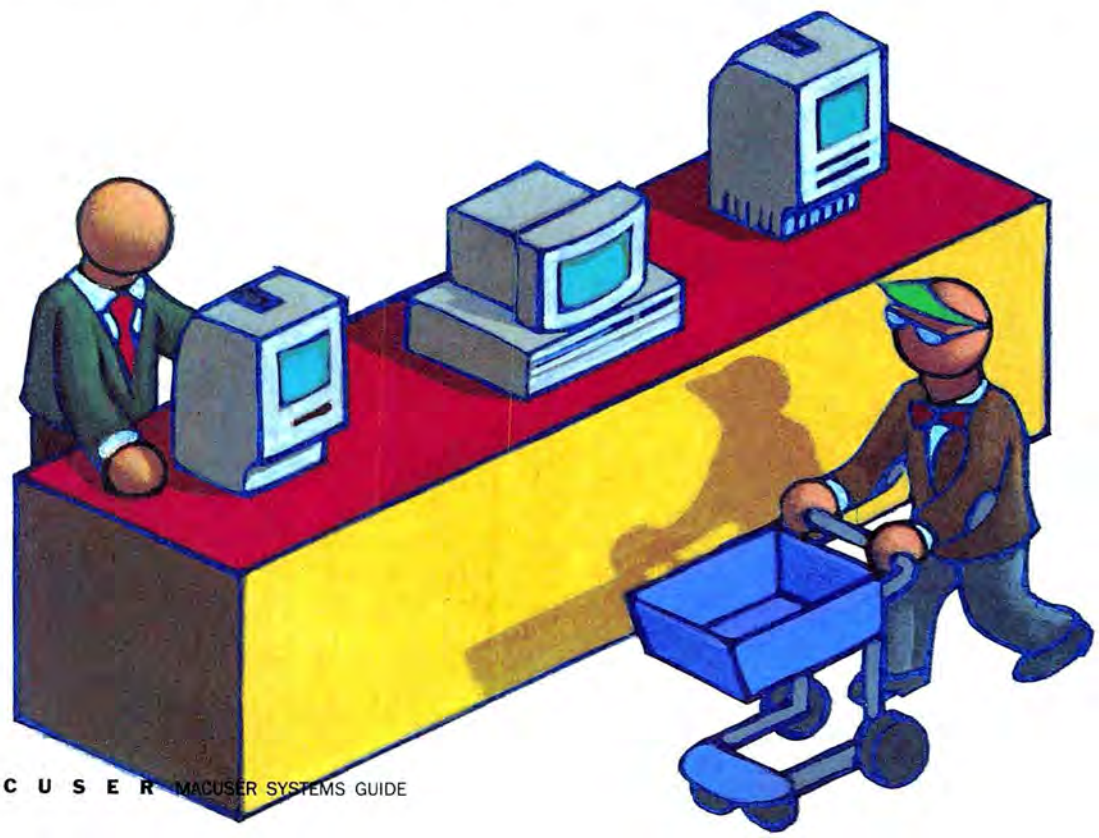
Apple Standard Keyboard, 81 keyswitch, Apple Desktop Bus detachable keyboard with 10-key numeric pad, $129. **Apple Extended Keyboard,** 105 keyswitch Apple Desktop Bus detachable keyboard with 15 function keys, T-cursor pad and 10-key numeric pad, $229. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

Hard Disks

AST 2000, 20-megabyte SCSI drive with built-in 20-megabyte tape drive. $1995. **AST 4000,** 70-megabyte hard disk with 60-megabyte tape drive. $5295. AST Research, 2121 Alton Ave., Irvine, CA 92714. (714) 553-0340.

Cirrus 21D 21 megabytes, $949; **30D** 30 megabytes, $1299; **60D** 60 megabytes, $1999; **40FD,** 40-megabyte Fast Disk, $1699; **40T** tape backup, $1399. Kamerman Labs, 7861 SW Cirrus Dr., Beaverton, OR 97005. (503) 626-6877. (800) 522-2237.

CMS MacStack SCSI external drives for Mac Plus, SE and II. 20 megabytes, $795; 43 megabytes, $1495; 80 megabytes, $1795. 40-megabyte internal drive for the SE, $1394. 43-megabyte



internal drive for Mac II, $1395. 80 megabytes, $1695. **Power Tower** external disk subsystem with 4-megabyte RAM cache, tape backup system, floor-mounted rack, 200-watt power supply. 320 megabytes, $12995. 640 megabytes, $16995. CMS Enhancements, Inc., 1372 Valencia Ave., Tustin, CA 92680. (714) 259-9555.

DataFrame20, $1099; **20XP,** $1299; **40XP,** $1899. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (415) 964-8884.

Ehman 20-megabyte SCSI external, $599; 40 megabytes, $1199. 800K external floppy, $225. Ehman Engineering, 115 Apache Dr., Evanston, WY 82930. (307) 789-6512.

FI 40 internal 40-megabyte drive for SE, $1599; **FX/20** 20-megabyte SCSI external drive, $1199; **FX/40,** $1799. **HyperTape** tape backup drive, $1399. General Computer, 215 First St., Cambridge, MA 02142. (800) 634-9737.

HD20SC external SCSI drive for Mac Plus, II or SE, $1299; **HD40SC,** $1999; **HD80SC,** $3199. **HD20SC,** internal SCSI drive for SE and Mac II, $999. **HD40SC,** internal SCSI drive for Mac II only, $1599. **HD80SC,** $2699. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

Jasmine 20-megabyte external SCSI drive, $649; 40 megabytes, $999; 80 megabytes, $1380. **JasPort** SCSI adapter, $129. Jasmine Computer Systems, 555 DeHaro St., San Francisco, CA 94107. (415) 621-4339.

LoDOWN SCSI drives. 20 megabytes, $995; 30 megabytes, $1295; 40 megabytes, $1995; 60 megabytes, $2495; 155 megabytes, $3995; 234 megabytes, $6595. 50-megabyte tape backup, $1295. **WORM** (Write Once, Read Many) 400-megabyte optical drive, $6150; 800 megabytes, $8245. **CD-ROM** drive $1595. **CD-ROM Development System,** includes the 400-megabyte WORM, 155-megabyte SCSI and 600-megabyte CD-ROM drive with audio, $11,585. LoDOWN, 10 Victor Square, Suite 200, Scotts Valley, CA 95066. (408) 438-7400.

MacBottom 21, 21-megabyte SCSI external drive, $1195; **MacBottom 45,** $1795. Optional Hayes-compatible built-in modem, $200 additional. Personal Computer Peripherals Corp., 6204 Benjamin Rd., Tampa, FL 33634. (813) 884-3092. (800) MACBUTT.

Magnet SCSI drives: **20X,** $1095; **30X,** $1295; **40X,** $1795. Tape backup systems: **Tape 20,** $1195; **Tape 40,** $1395. **Magnet 40/40** SCSI drive with built-in tape backup, $2795. Magnet large capacity SCSI drives: **85X,** $4595; **172X,** $6995; **340X,** $13995. Mirror Technologies, 2209 Phelps Rd., Hugo, MN 55038. (612) 426-3276.

Peripheral Land SCSI hard disk drives: **PL20,** $995; **PL30,** $1395; **PL50,** $1995; **PL80,** $2495; **PL172,** $5995; **PL230,** $6995. **MacBackPlus** tape backup drives: 20 megabytes, $995; 40 megabytes, $1295; 60 megabytes, $1695. **PL40I** internal SCSI drive for Mac SE, $1295; PL60I internal, $1450. Peripheral Land, 47800 Westinghouse Dr., Fremont, CA 94538. (415) 657-2211.

Photon 20 megabytes, $569; 30 megabytes, $789; 40 megabytes, $949; **PlusPort** SCSI port, $150 additional. Warp Nine, 1751 W. County Rd., Suite 107, St. Paul, MN 55113. (612) 426-9769. (800) 654-5294.

PLUS SCSI drives: 20 megabytes, $1095; 30 megabytes, $1295; 50 megabytes, $2195; 80 megabytes, $2695. **SIERRA,** 40-megabyte hard disk and 40-megabyte tape drive in one unit, $2995. Peak Systems, PO Box 161404, Austin, TX 78716-1404. (512) 329-1020. (800) 225-7509.

ProAPP external SCSI drives: 20 megabytes, $899; 30 megabytes, $999; 40 megabytes, $1399. ProAPP, 2 Faraday, Irvine, CA 92718. (714) 586-7700.

Relax Hard Disk 150, 150-megabyte SCSI drive for 512E, Plus, SE or Mac II, $4395. **Tape 20 Plus,** 20-megabyte tape backup, $1295; 60-megabyte version, $1595. Relax Technology, 3101 Whipple Rd. #22, Union City, CA 94587. (415) 471-6112.

Rodime external SCSI drives for the Plus, SE and Mac II: **20 Plus,** $1195; **45 Plus,** $1595. **45RX** 45-megabyte internal drive for the SE and II, $1595. Rodime, Inc., Peripheral Systems Division, 29525 Chagrin Blvd., Pepper Pike, OH 44122. (216) 765-8414.

Totem disk drive subsystems: 20-megabyte 5¼-inch drive, $1495. **20/20** dual unit, $2295. Uses Bernoulli cartridge technology—5¼-inch high density floppies in cartridge format. Cartridges, $85 each. Bering Industries, 280 Technology Circle, Scotts Valley, CA 95066. (800) BERING 1. In CA (800) 533-DISK.

Video Cards and Monitors

Apple Video Card for the Macintosh II, $499. Upgrade kit, $149. **13-inch High-Resolution** monochrome monitor for the Macintosh II (requires Apple video card or equivalent), $399. **15-inch High-Resolution RGB** color monitor for the Macintosh II (requires Apple video card or equivalent), $999. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

Big Picture, 17-inch monochrome monitor and adapter card for Mac Plus or SE. Displays 1024 X 808 pixels, $1995. EMachines, 7945 SW Mohawk, Tualatin, OR 97062. (503) 692-6656.

Chromatron Video Scan Convertor

outputs NTSC video signals in color for recording or display on a standard VCR or TV. Works with 128K, 512K and Mac Plus. $2995. Beck-Tech, 41 Tunnel Dr., Berkeley, CA 94705. (415) 548-4054.

Full Page Display, 15-inch portrait-mode monochrome monitor with built-in swivel stand and anti-glare screen. Displays 90 dots per inch. $1995. Nutmeg Systems, 25 South Ave., New Canaan, CT 06840. (203) 966-3226.

LaserView, 15-inch monochrome monitor with display of 1664 dots X 1200 lines, adapter card and driver, $1795. 19-inch, $2295. Sigma Designs, 46501 Landing Pkwy., Fremont, CA 94538. (415) 770-0100.

MegaScreen II, 19½-inch monochrome monitor for Mac Plus and SE,

$1995. **MegaScreen Plus,** $1995. Micrographics Images, 20954 Osborne St., Canoga Park, CA 91304. (818) 407-0571.

Radius Full Page Display, 864 X 640 display shows an 8 ½ X 11 inch page plus menu bars. $1995. Radius, Inc., 1050 E. Duane Ave., Suite F, Sunnyvale, CA 94086. (408) 732-1010.

SuperView video card for the SE provides a 1365 X 1024 display, $495. **Graphix** video card provides 1365 X 1024 black and white display for the Macintosh II, $495. **19-inch** high-resolution monochrome monitor, $1495. **Spectrum 1000-8** video card for the Macintosh II provides 1024 X 768 resolution in 2, 4 or 8 bits. $1495. **19-inch** RGB color monitor, $2995. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (415) 964-8884.

Vista 1600, high-resolution monochrome monitor and video card for the Macintosh II. 1600 X 1280 resolution, non-interlaced. $2195. Cornerstone Technology, 175A East Tasman Dr., San Jose, CA 95134. (408) 433-1600.

Printers/Plotters and Print Accessories

ImageWriter Wide Carriage dot matrix printer, $749. **ImageWriter II** dot matrix printer, $625. **AppleTalk Option,** $139.

LaserWriter 300 dpi PostScript laser printer with 512K RAM, $4999. **LaserWriter Plus** with 1 megabyte of RAM, $5799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

HP ColorPro, 8-pen desktop plotter, 8 ½ by 11 inch paper only. $1295. Hewlett-Packard, 16399 W. Bernardo Dr., San Diego, CA 92127-1899. (619) 487-4100.

KroyKolor, color transfer processor for adding color to printed materials, $995. Kroy Sign Systems, 7560 E. Redfield Rd., Scottsdale, AZ 85260. (602) 951-1593. (800) 521-4997.

MacEnhancer, expander box. Provides one Mac serial port, two RS-232 serial ports, one Centronics parallel port. Software to drive many standard serial and parallel printers, modems. $245. Hardware by Microsoft, software by SoftStyle. Distributed by SoftStyle, 7192 Kalanianaole Highway, Suite 205, Honolul, HI 96825. (808) 396-6368.

MacBuffer, ImageWriter print buffer: 256K, $299.95; 512K, $99.95; 1 megabyte, $499.95. **MacBuffer LW** 1 megabyte (expandable to 4 megabytes) print buffer for the LaserWriter, $1895 plus $350 each additional megabyte. Ergotron, PO Box 17013, Minneapolis, MN 55417. (612) 854-9116. (800) 328-9839.

OmniLaser PostScript printers:

2108, 2-megabyte RAM and 8 pages per minute output, $5995; **2115,** 3 megabytes of RAM, two input bins and 15 pages per minute output. Texas Instruments, PO Box 809063, Dallas, TX 75380. (800) 527-3500.

QMS PS Jet Plus, LaserWriter Plus lookalike and workalike, $5495. The Laser Connection, PO Box 850296, Mobile, AL 36685. (205) 633-7223.

ScripTen, PostScript laser printer. 2 megabytes, $4795; 3 megabytes, $5295. Qume, Inc., 2350 Qume Dr., San Jose, CA 95131. (800) LASER 55.

Communications

AlisaTalk file server package for DEC VAX, AppleTalk. Alisa Systems 221 E. Walnut St., Suite 230, Pasadena, CA 91101. (818) 792-9474.

AppleTalk PC Card, plug-in card lets 1-megabyte PCs and compatibles access the AppleTalk network. $399. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

EtherSC is a hardware box plus software that provides a direct connection from a Mac Plus SCSI port to 3COM's Ethernet network, $1250. **FastPath** is a similar box used to bridge AppleTalk networks to Ethernet, $2500. **EtherPortSE,** Ethernet controller for the Mac SE. Kinetics, 2500 Camino Diablo, Suite 110, Walnut Creek, CA 94596. (415) 947-0998.

FastNet, hardware device that provides an intelligent connection between SCSI ports and Ethernet or other Local Area Networks. Dove Computer Corporation, 1200 N. 23rd St., Wilmington, NC 28405. (919) 763-7918.

Fiber Optics Local Area Network for AppleTalk. Allows over a hundred stations per network, more through bridges. Nodes can be up to 4900 feet apart. DuPont Connector Systems, 515 Fishing Creek Rd., New Cumberland, PA 17070. (717) 938-6711.

FT100 contains a half-height IBM-compatible floppy disk drive. Allows file transfer directly from IBM data disks to Macintosh applications. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (800) 531-0600.

HyperNet, distributed file server for HyperDrive, other hard disks. General Computer, 215 First St., Cambridge, MA 02142. (617) 492-5500.

InterBridge bridges multiple AppleTalk networks, also allows access to AppleTalk via modem from a remote location. Hayes Microcomputer Products, 705 Westech Dr., Norcross, GA 30092. (404) 449-8791.

MultiTalk, serial port server allowing AppleTalk to connect with serial peripherals. $695. Abaton Technology Corp., 7901 Stoneridge Dr., Suite 500, Pleasanton, CA 94566. (415) 463-8822.

Netway 1000A, 3274 Gateway provides IBM host system access for Macs on an AppleTalk network. Software options provide terminal emulation and file transfer support. Tri-Data, 505 East Middlefield Rd., Mountain View, CA 94043. (415) 969-3700.

NUCLEUS file server for SCSI drives with microprocessor, memory and software, $1595; 20-megabyte file server, $2595; 40 megabytes, $3395. Reach Technologies, PO Box 9802, Suite 925, Austin, TX 78766. (512) 832-0445.

OmniNet, Local Area Network providing high speed transmission, up to 64 nodes and up to 4000 feet between stations. Corvus Systems, Inc., 160 Great Oaks Blvd., San Jose, CA 95119-1347. (408) 281-4100.

PhoneNET, AppleTalk cabling system using telephone wiring and modular jack connectors. $49.95 per node. **Phone-**

The People who use our products aren't mass produced either.

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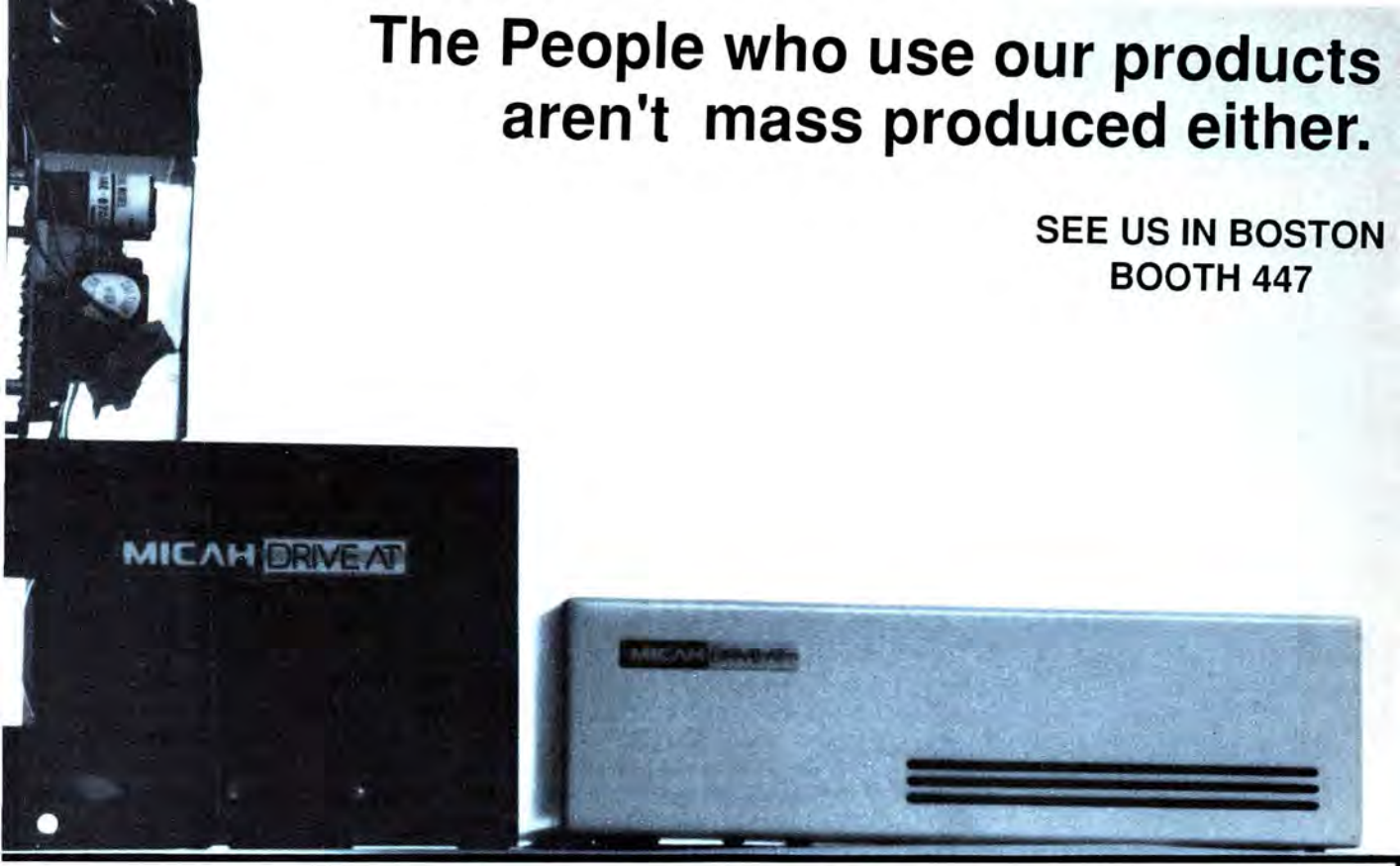

The new **Micah** Corporation offers the sophisticated Macintosh user the tools necessary to be your best! This year Micah will produce only **3,000** handcrafted all American hard disk drives (20, 30, 45, and 90 meg.). That means only one in three hundred Macintosh Users will be able to take advantage of Micah's Advanced Technology. Our all American made component drives are designed to operate under the most extreme conditions. Each drive is tested under varying temperature and environmental conditions so your place of business will not be a proving ground for design flaws, and as a result Micah can offer its users a **two year limited warranty.** Last year MacTimes gave the MicahDrive 20 AT a 5 of 5 for performance, and a 4.5 of 5 for value. In that time Micah has only improved the Micahdrive line of hard disks by incorporating design changes that improved performance by 50%. The Micah Drive 45ATs is the third drive for your MacSE. Not a replacement, the ATs 45 gives your SE 45 megs of additional storage and allows you to keep your two drive slots! The new Micahdrive XT series offers total compatibility and can be interchanged at any time from a Mac 512E with MicahPort, through the Mac II.

Our **MicahVision** video system for the Macintosh SE and II drive high resolution single and double, monochrome or color monitors. With programmable resolutions up to 2730 x 1024 at 72 DPI, you'll see double tabloid side by side! The fact is while other manufacturers cram more non-standard pixels on the screen Micah's engineers are giving you the maximum Apple "legal" size screen.

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NET Star controller, software and management card lets you connect an AppleTalk network in a star topology using a building's existing telephone lines. **PhoneNET Repeater,** a booster that extends AppleTalk networks. Farallon Computing, 1442A Walnut St., #64, Berkeley, CA 94709. (415) 849-2331.

3+ Mac, file server and Ethernet Local Area Network system for Macintosh that connects to 3+ networks using PCs. 3COM Corp., 3165 Kifer Rd., Santa Clara, CA 95052. (408) 562-6400.

TOPS Repeater, booster box to extend AppleTalk networks, $189. **TOPS STAR,** controller box that lets you run AppleTalk in a star configuration using existing telephone wiring, $150. Centram Systems West, 2560 Ninth St., Berkeley, CA 94710. (415) 549-5900.

Digitizers/Scanners

LoDOWN, 300 dpi image scanner, $1785. LoDOWN, 10 Victor Square, Suite 200, Scotts Valley, CA 95066. (408) 438-7400.

MacVision, video camera and digitizing software, $349.95. Koala/PTI Industries, Inc., 269 Mt. Hermon Rd., Scotts Valley, CA 95066. (408) 438-0946.

Magic, video digitizing system. $549 (with camera), $399 (without camera). New Image Technology, Suite 104, 10300 Greenbelt Rd., Seabrook, MD 20706. (301) 464-3100.

MicroTek MS-300A, 300 dpi image scanner, $2495. MicroTek Labs, 16901 South Western Ave., Gardena, CA 90247. (213) 321-2121.

PC Scan Plus, 300 dpi image scanner, $2495. Optical character recognition optional. DEST Corporation, 12 Cadillac Dr., Milpitas, CA 95035. (408) 946-7100.

Scan 300, 300 dpi image scanner, $2495. **Sheet feed scanner,** $1895. **Flat bed scanner,** $2295. Abaton, 7901 Stoneridge Dr., Pleasanton, CA 94566. (415) 463-8822.

Spectrum LS-300, 300 dpi scanner for the Mac Plus, SE and Mac II. $1550. Spectrum Digital Systems, 2702 International Lane, Madison, WI 53704. (608) 244-4300. (800) 541-6661.

ThunderScan scans images through an attachment for ImageWriter or ImageWriter II printers. $229. ThunderWare, 21 Orinda Way, Orinda, CA 94563. (415) 254-6581.

Time Wand, bar code (credit card type) reader with internal clock for time/date stamping. 2K memory, $198; 8K, $228; 16K $248. Videx, 1105 Northeast Circle Blvd., Corvallis, OR 97330. (503) 758-0521.

TurboScan, 300 dpi image scanner, $2395. AST Research, 2121 Alton Ave., Irvine, CA 92714. (714) 553-0340.

Graphics Tablets

Macintizer for Mac and Mac Plus, $399. GTCO, 7125 Riverwood Dr., Columbia, MD 21046. (301) 381-6688.

MacTablet, 6 X 9, $449; 12 X 12, $599. Summagraphics, 777 State St. Extension, PO Box 781, Fairfield, CT 06430. (203) 384-1344.

PenMouse+, $245. **IS PenMouse,** $295. Kurta Corporation, 4610 S. 35th St., Phoenix, AZ 85040. (602) 276-5533.

Accelerators and Other Expansion Boards

Ehman memory upgrade:128K to 512K, $199; 128K to 1 megabyte, $379; 128K to 2 megabytes, $689; 512K to 1 megabyte, $185; 512K to 2 megabytes, $499; Mac Plus to 2 megabytes kit, $329; Mac Plus to 4 megabytes kit, $1825. Ehman Engineering, 115 Apache Dr., Evanston, WY 82930. (307) 789-6512.

HyperCharger 020, 68020 coprocessor card for SE, $1499. With optional 68881 floating point coprocessor, $1899. General Computer, 215 First St., Cambridge, MA 02142. (800) 634-9737.

Mac 86, 8086 coprocessor card for the Mac SE. With MS-DOS, provides IBM PC compatibility. Floppy disk controller on board. Supports MDA and CGA graphics. $599. **Mac 286,** 80286 coprocessor card for the Mac II. With MS-DOS provides IBM PC/AT compatibility. Comes with 1 megabyte of its own RAM, DMA, and is slotted for the 80287 math coprocessor. Supports MDA, CGA and Hercules graphics standards. $1499.

Integrated Communications Processor Board lets you attach up to four dumb terminals to a Macintosh II running UNIX. 2 ports, $949; 4 ports, $999. **RM4** for the Macintosh II offers 1 to 4 megabytes of RAM for use by other NuBus cards. $1799 for 4-megabyte. AST Research, 2121 Alton Ave., Irvine, CA 92714. (714) 863-1333.

MacMegabyte, 1-megabyte upgrade for 128K and 512K, fully compatible with HFS ROM. $129 for kit. BeckTech, 41 Tunnel Dr., Berkeley, CA 94705. (415) 548-4054.

Prodigy Prime, 16-MHz 68020 clip-on accelerator board for the Macintosh Plus with 1 megabyte of RAM expandable to 32 megabytes. 68881 math coprocessor and 68851 Paged Memory Manager Unit, optional. $1899 base price. **Prodigy SE,** identical to the Prodigy Prime except it plugs into the SE's expansion slot. 68881 math coprocessor and 68851 Paged Memory Manager Unit, optional. $1499 base price. Levco, 6160 Lusk Blvd., Suite C-203, San Diego, CA 92121. (619) 457-2011.

Radius Accelerator, 68020 coprocessor board available for Mac 512E, Mac Plus and Mac SE; has hardware cache, $995. Optional 68881 floating point coprocessor. Additional $395. Radius, Inc., 1050 East Duane Ave., Suite F, Sunnyvale, CA 94086. (408) 732-1010.

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Apple Personal Modem, 1200 baud modem, works best with *MacTerminal* software. Not Hayes compatible. $429. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010.

AST XX9600, 9600 baud modem, $1899. AST Research, 2121 Alton Ave., Irvine, CA 92714. (714) 553-0340.

Hayes Smartmodem. Hayes set the industry standard for modem protocols. 1200 baud, $599; 2400 baud, $899. Hayes Microcomputer Products, 705 Westech Dr., Norcross, GA 30092. (404) 449-8791.

Promodem 1200, $349. **2400,** $499. Optional 512K buffer, $149. Prometheus, 4545 Cushing Pkwy., Fremont, CA 94538. (415) 490-2370.

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MacADIOS, data acquisition controller with controlling software. $2500. GW Instruments, PO Box 2145, Cambridge, MA 02141. (617) 625-4096.

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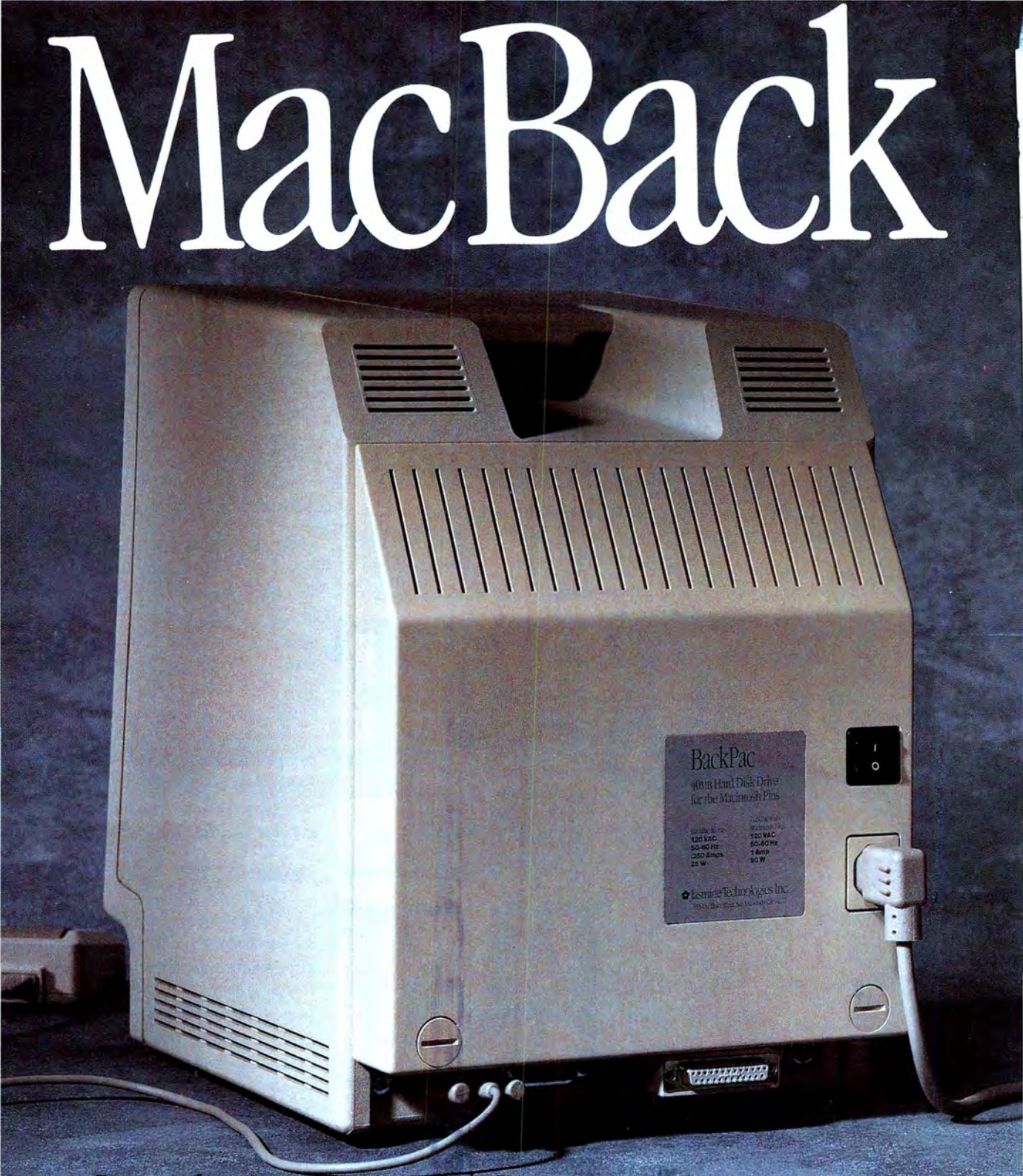

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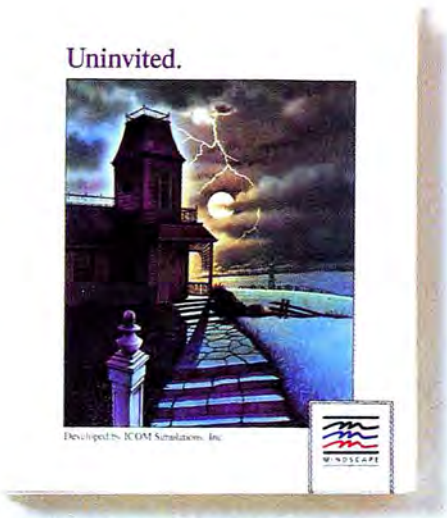

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Tools of the Trade

Doug Clapp's Word Tools is finally here. Do you still want it?

BY LOUISE KOHL

FRANKLY, I WAS NOT ONE OF THE millions who were champing at the bit waiting for *Doug Clapp's Word Tools* to appear on the scene. It was that claim to make me "a better writer." It's not that I have anything against self-improvement. It's just that I don't think that another *person* can really teach you to be a better writer, much less a piece of software. Messy writing can be tidied up, sloppy syntax can be tightened, vacuous vocabulary can be improved, but good writers are just plain born. Doug Clapp says, "Number nerds have spreadsheets, fact nerds have data bases, but word nerds don't have anything." I guess I think "word nerds" shouldn't be writing anything more than letters home in the first place.

With that off my chest, I have to say that *Word Tools* has a number of things to recommend it, especially in terms of the cleanup operations of writing. And it has one advantage over a human teacher: If you don't take its advice, it doesn't affect your grade. And, while it won't put copy editors out of work, it could make their work somewhat easier.

What *Word Tools* can do is make your writing more readable by clearing out things such as bad punctuation, overused words or phrases or unwieldy sentences and paragraphs. It cannot, however, do this without your active cooperation. If you're expecting a program to put you on the ballot for the Pulitzer Prize without any effort on your part, you'll have to look elsewhere. (And you won't find it there, either.)

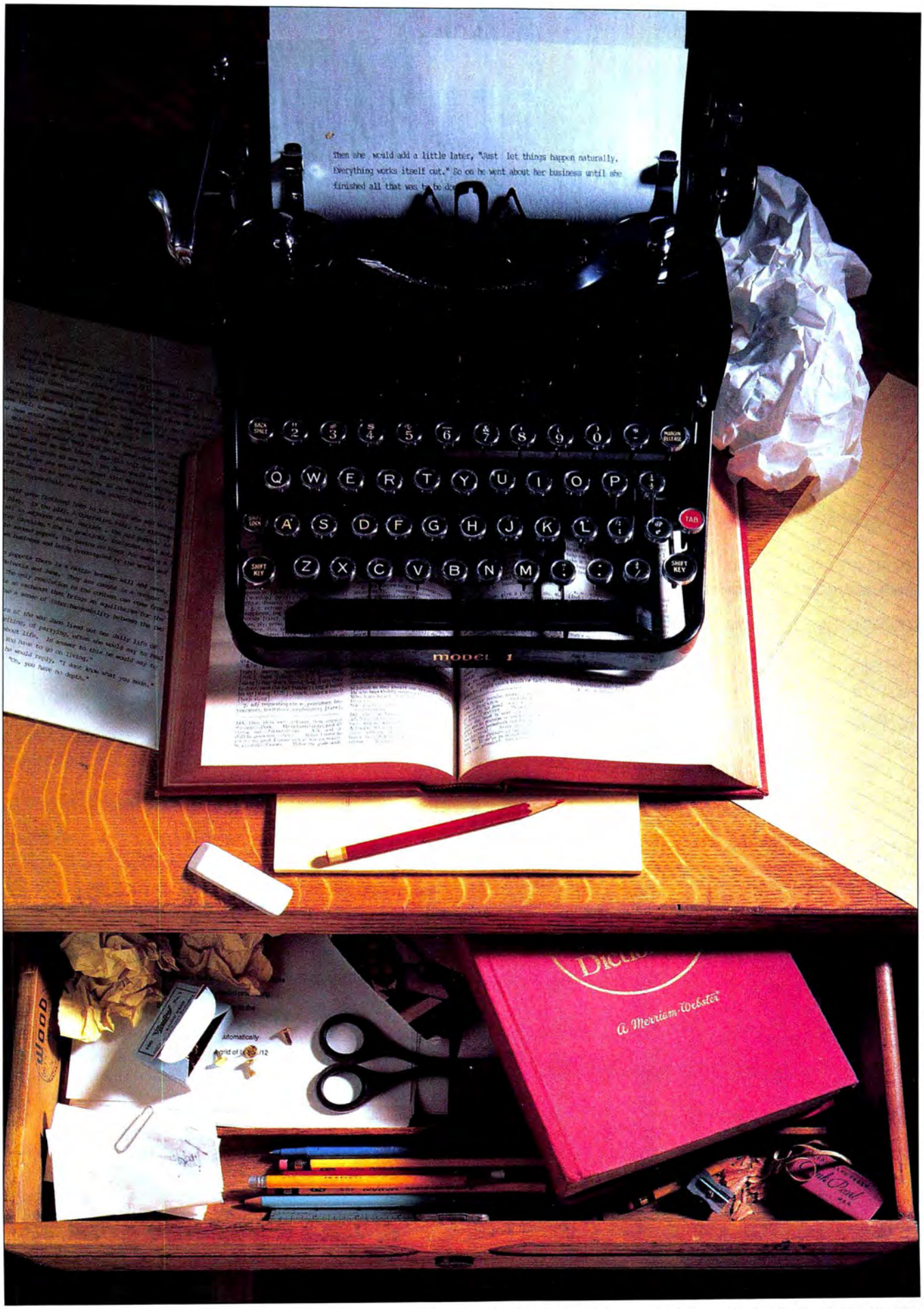
On the whole, the various functions of this program rate high in usefulness—with one exception: the style section. Let's start with the good stuff. Like punctuation, counting and ranking.

IN THE BEGINNING

It's best to start by going into the Suspect Editor and running through the punctuation and suspect lists that are already part of the program. Once you are using the program the only way to edit the suspects lists is to exit back to the desktop. (Or use *Switcher*, which is provided on the *Word Tools* disk in version 1.02.) And you may very well want to alter some entries and add others.

For example, this magazine, like many others, prefers a single space after the end of a sentence. *Word Tools* (like your high school English teacher) prefers two spaces. Changing the entry was a simple matter of clicking and typing.

The style list seems fine as it stands, although I added "has the capability of" as a suspect and asked the program to suggest "can." If you want to find an entry, the procedure


Then she would add a little later, "Just let things happen naturally.
Everything works itself out." So on he went about her business until she
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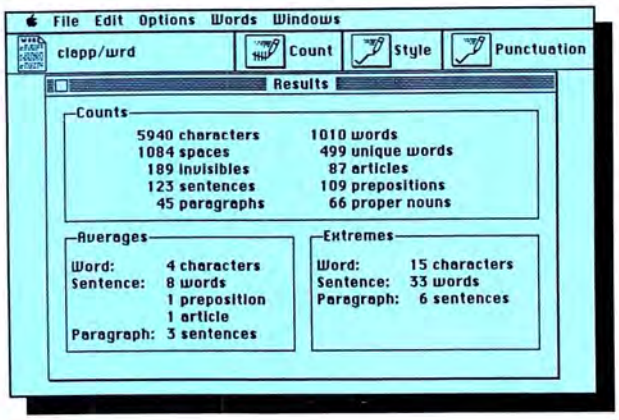
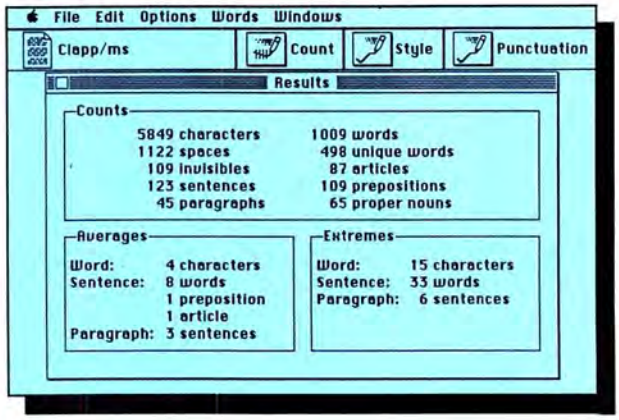




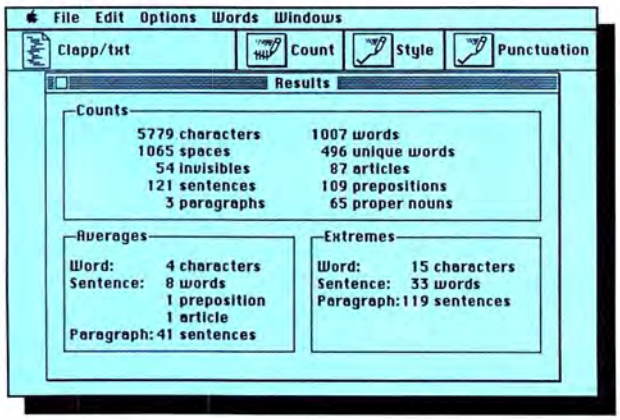


Figure 1: Here are the *Word Tools* counts for Doug Clapp's column in three different formats. No two are exactly alike and Doug never wrote an 119-sentence paragraph in his life.

is not quite intuitive. Open the Suspect List by clicking on the icon. At any entry type the word or phrase you're looking for in the Suspect box. Then click on FIND. You'll probably want to add your own *bete noires*.

To get into the meat of the program, click on the *Word Tools* icon. Then go to the File menu and choose OPEN. This gives you the standard Open dialog through which you access any of your works in progress. Aegis calls *Word Tools* interactive, which it is to a point. Unfortunately, the point stops short of being able to edit the suspect lists or any editing other than changing the suspect that *Word Tools* flags.

DOWN FOR THE COUNT?

The basis for the information *Word Tools* gives you is the count. *Word Tools* seems to like counting almost as much as a famous *Sesame Street* character. Click on COUNT, turn it loose on your document and it counts everything in sight (and

out of it, like spaces and invisible characters). It tots things up in 16 different categories. Some I haven't quite discovered a real use for myself, like the number of characters and the number of spaces. (The number of *words* I can understand, but whoever heard of getting paid by the letter?)

Word Tools, however, leaves no stone unturned in this respect. You get not only the gross number of words, but also the number of different (unique) words, number of articles, number of prepositions and number of proper nouns. Next, presumably, the program moves on to count the number of sentences—pausing to figure out the number of words, articles and prepositions in your average sentence. Doing some of that quick figuring for which computers are noted, it goes on to tell you the extremes and averages for word, sentence and paragraph length. It can be a bit overwhelming.

WHO CARES?

Why all this counting you may ask? How is all this going to turn me into the Proust of my generation? Well, *Word Tools* is not just fiddling around with all these things in a theoretical vacuum. A lot of the reasons for what the program does and the algorithms it uses come from a classic (it's been around a while) book on writing by Rudolf Flesch, *The Art of Readable Writing*. Notice that the title doesn't say anything about "good" or "better" writing. It's about clear, and to some degree, interesting, writing. (I can't wait to run *that* sentence through the punctuation check.)

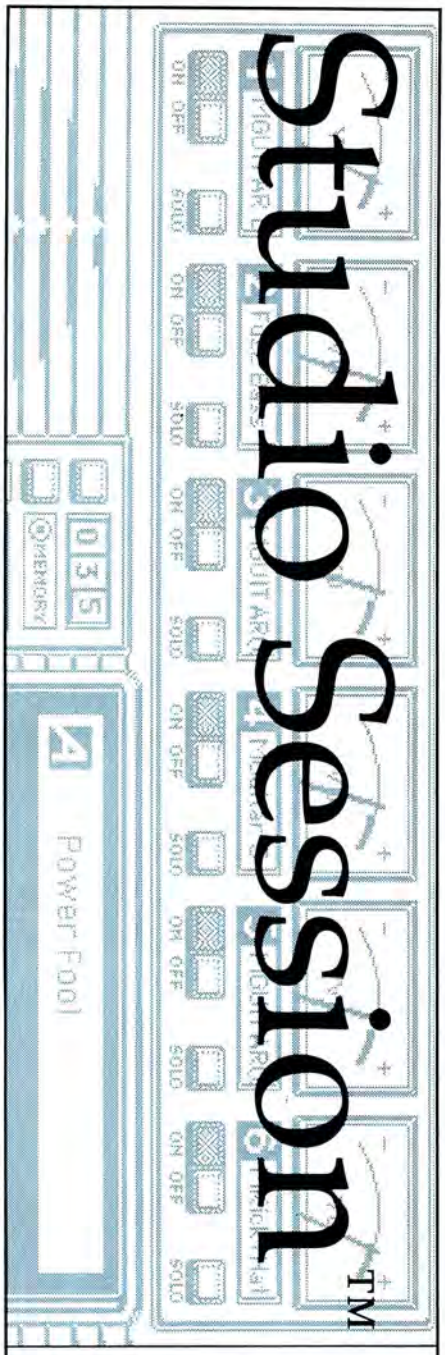
The simplest statement of Flesch's theory is "the shorter, the better." (What this implies about his view of the average reader is probably better left unsaid.) Shorter words are easier to read, shorter sentences are easier to understand and what you understand holds your interest. On the basis of this theory Flesch developed a "readability formula," which forms the basis of the algorithm used by *Word Tools*. If you have a chance, read Flesch's account of the formula; the book is readily available in paperback. You have to do a lot of counting, multiplying by such arcane numbers as 0.846 and subtracting 206.835. You begin to appreciate putting the whole thing on a computer, and to see why *Word Tools* is such a counting fool. Flesch suggests you do your counting based on 100-word samples; one advantage of having it on the computer is that your entire manuscript is treated as a "sample." (Or three different samples; see below.)

Both Flesch and the developers of *Word Tools* believe that writing is improved when the author pays more attention to what he or she is doing. This is certainly true if we are talking about developing a clear, concise style. Unfortunately, all the clarity and precision in the world will not make up for having nothing of particular interest to say in the first place.

While Word Tools won't put copy editors out of work, it could make their work somewhat easier.

DON'T COUNT ON IT

Word Tools handles text, *MacWrite* and *Word* 3.0 files; it does not seem to handle them equally well, however. For one thing, it takes much longer to count a *MacWrite* file—a little over 6½ times longer. (*Word* and text files were equally speedy at an average time of 23 seconds for an 8K file; the *MacWrite* file took an average of 2½ minutes.) There's a perfectly legitimate reason for this. Because of the somewhat byzantine way *MacWrite* handles text compression and the structure of your document when you save a file, it takes *Word Tools* a while to sort things out. If you have a large file, Aegis suggests you convert it to an ASCII (text) file before using *Word Tools* on it.



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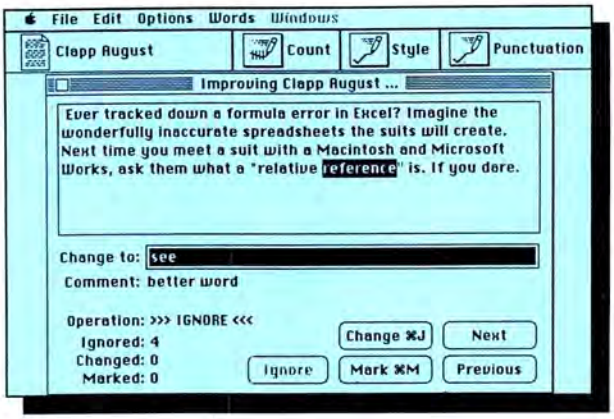

Figure 2: While none of the items on *Word Tools'* style suspect list is itself suspect, the program can be off in its recommendations. *Word Tools* is not unique in its inability to consider context. A lot of humans have trouble with that, too.

Sounds reasonable, doesn't it? Unfortunately, the major problem with the Count function is inconsistency. If you have *Word Tools* count the same manuscript in each of the three formats, you get different counts. Not all the individual counts are different, but there's a noticeable discrepancy throughout. (See Figure 1.) I can understand why the number of invisibles would differ, as they vary among the formats. But the number of words, spaces and paragraphs—among other things—also varies.

And there are the usual problems with converting to text: You lose your formatting. If you make corrections in the text file, you'll have to make them all over again in the *MacWrite* or *Word* version.

MAYBE IT'S A FEATURE?

As a test, I ran this month's Doug Clapp column and the first 10 manuscript pages of this article through *Word Tools* as all *Word, MacWrite* and text files. The counts for Doug's column showed the largest discrepancies. The Extremes dialog showed his longest paragraph as eight sentences (*MacWrite*), 54 sentences (*Word*) and *119* sentences (*text*). Any of us who read Doug regularly can tell you that his average longest paragraph probably runs about 4 or 5 sentences—after editing.

I decided to investigate. I had to count the documents again, then choose EXTREMES under the Window dialog. The extreme paragraph shown in the text file was actually several paragraphs run together. The *Word* count gave me "error = –127" when I requested to see the offender in question. At this point, not wanting to wait through a *MacWrite* read, I resorted to the low-tech method of a manual count. The longest paragraph in the column has seven sentences in it by that method. Go figure.

Having to count the same document each time you work on it is a minor annoyance. An editor, who might well have recourse to this program, can't always do everything that needs to be done to a manuscript in one fell swoop. Standard operating procedure, dictated by interference from phone calls, other editors and lunch, is to do some now, some later. Since *Word Tools* has to count before it can do anything else, it demands a recount every time you return to a manuscript. You can't save the count. If you're not an editor—or you edit at home in the dead of night—this probably won't bother you.

GETTING RESULTS

Once the count is out of the way, go to Windows on the menu bar. You have four choices: Count Results, Rankings, Word List and Extremes. Of these, the most useful are the Word List and Extremes. Count Results just shows you how many of everything there are. If you just counted, those results are already on your screen. Rankings shows graphs indicating the reading and interest levels of the piece, and word, paragraph and sentence length.

Word Lists is an extremely useful item. It gives you *every* word in the manuscript in either numerical (by

number of times it appears) or alphabetical order. Go for numerical. Check the words that appear most frequently. If most aren't something like "the" or "and," this could be a warning that certain words or phrases are overused. You would do well to consider some judicious editing, by replacing them with synonyms or deleting them altogether.

Cosmopolitan magazine would probably rate very high here, while Desmond Morris would not. Think about it.

While *Word Tools* does not have a spelling checker per se, the Word List can operate as one to some extent. Choose SORT under the Options menu and click on BY FREQUENCY and DESCENDING; this seems to be the most useful way to view the Word List. Go to the end of the list and check words that only occur once. A significant number of them will probably be misspelled. If you're not sure whether they are or not, you could consult a hard copy dictionary. Or you could get the more expensive version of *Word Tools*; it comes with the Aegis *Speller*.

The Extremes section can also force you to make some editorial decisions. A 68-word sentence or 105-word paragraph probably needs rewriting. But not always; when Doug Clapp's August column was run through *Word Tools* (text version), it picked up a 54-word sentence as an extreme. However, the jaundiced editorial eye found that the—admittedly long—sentence was punctuated just fine and read quite well. *Word Tools* was quite right to flag it, but the final decision came down to a human judgment call.

Always bear in mind that the

Figure 3: Unlike the punctuation list, the style suspect list gives *Word Tools* a little scope for wit.

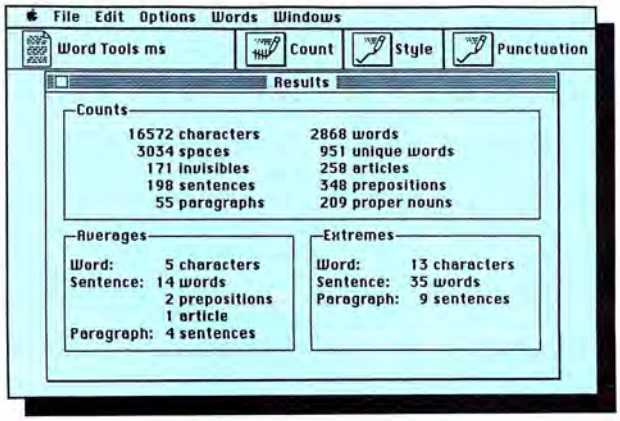

Figure 4: The final rundown on this article from the *Word Tools* standpoint. The word "a" was the most used word.

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program measures extremes against your own style. If you commonly write one or two sentences per paragraph, a four is going to be extreme and six will probably throw the program into moral outrage. There do not seem to be any "meta-rules" imbedded in the program as to what constitutes too many sentences per paragraph or too many words per sentence. Not to worry; that's what teachers and editors get paid for.

IN THE FIRST RANK

Word Tools ranks your document when you choose RANKING under the Windows menu. This gives the grade and interest level of the piece and word, sentence and paragraph length, all represented on graphs. I don't find this section particularly useful; and I can get the grade ranking just as easily through *Thunder!*, a fast DA spelling checker that I frequently use.

STYLISTIC CHANGES

The count discrepancies can be lived with, even ignored most of the time. However, the theory behind the style checker is worrisome. And there are a few minor non-features that make it the least useful of *Word Tools*' functions.

Writing style is a funny thing. And it's mainly an individual judgment insofar as it affects the interest level of any particular piece of writing. *Word Tools* favors short sentences, short words, short paragraphs and exclamation and quotation marks.

There are, however, certain books with somewhat turgid or superficially difficult styles which remain interesting and worth reading because of the content—or in the case fiction, the story line. (For me, these include Frank Herbert and William Gibson novels, for example.)

There are other works which may be an acquired taste, but a taste which many people do, in fact, acquire. Dickens, for instance, would not fare well with *Word Tools*; his sentences and paragraphs are too long and he uses more than a few words longer than three syllables. On the other hand, there are a lot of quotation marks in Dickens—maybe it would even out. (If anyone would like to check this theory by inputting *Bleak House* and running it through *Word Tools*, let me know the results. Don't use *MacWrite*.)

The main problem with this section of the program is semantic. What *Word Tools* is actually rating here is not the "interest level" as much as it is the tone. What the program sees as interesting is actually just personal tone. That is, it rates as more interesting sentences that address the reader directly or indicate a personal content with quotation marks. *Cosmopolitan* magazine would probably rate very high here, while Desmond Morris would not. Think about it. (Neither Doug's column nor this article rated very high in interest, so this may be sour grapes.)

One practical problem with checking the style is that *Word Tools* often flags a word or phrase that may be illicit most of the time, but is perfectly OK in this particular context. *Word Tools* cannot judge usage relative to its context; but neither can any other program. (Mainframe programs excepted—maybe.) Again, we can give thanks that human judgment has not been superseded by machine intelligence.

Everyone at Aegis seems to know all about Word Tools. I guess they've had a while to study up on it.

Another small drawback—which Aegis expects to overcome in some future version —is that *Word Tools* lacks a word processing function. It will flag any problems for you, but you are limited in what you can do. When the program flags a suspect, you can do one of three things: paste in the phrase in the Change to ... dialog box; change the phrase to

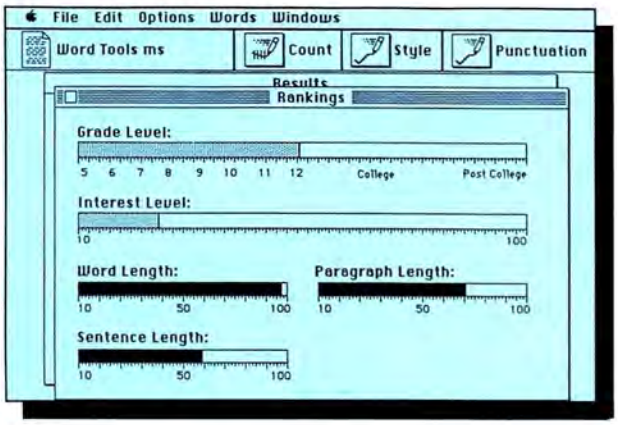

Figure 5: *Word Tools'* last word on this article. Don't let it affect your own judgment!

something else and paste *that* in; or ignore the whole thing. Sometimes the program flags a phrase which is indeed awkward or incorrect, but which cannot be fixed by a simple replacement. A *miniWRITER*-type function would be a big help here.

One nice thing about the suspect lists is that you can edit them for specific jobs. The people in technical support at Aegis say that there are a few BASIC programmers who have found this to be a godsend.

THE THING IN ITSELF

Word Tools comes on an 800K disk, with an option to order the 400K version by mailing in an order form *and* your registration card. I used the 800K version after transferring it to my hard disk and it works fine. We have two different versions here at *MacUser* (1.0 and 1.02), both of which show version 1.0 on the title screen. The correct version is shown by pulling down the About... dialog.

The manual is clear and seems to cover all you might need to know in a sensible manner. It handles checking and editing suspects in two different chapters, but this was only momentarily confusing. What it most obviously lacks is any mention of a customer service or technical support number. Aegis says just call their main number and ask for the department you want. It is not, needless to say, an 800 number.

On the other hand, I got prompt and complete answers to the questions I (anonymously) asked over the phone. Everyone there seems to know all about *Word Tools*. (I guess they've had a while to study up on it.)

THE LAST WORD

In the final analysis, *Word Tools* is a useful, easy-to-use program. While it has some limitations (and is based on a theory I've thought suspect since my first journalism class), it is worth using, particularly if you write for the public eye. The punctuation list alone will save you some embarrassment, not to mention save your editor time. It won't necessarily make you a better writer, but it can go a ways to making your writing better.

In the end, you get to be a better writer the same way you get to Carnegie Hall—practice.

LOUISE KOHL IS EXECUTIVE EDITOR OF MACUSER AND HAS PROMISED NOT TO MAKE ANY JOKES IN THIS BIO.

MACUSER RATING

Word Tools ttttt

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ ◪
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ □

Comments: A useful author's tool for checking punctuation and style. **Best Feature:** Punctuation suspect list checking for overused words and phrases via the Word List. **Worst Feature:** Inconsistent word counts among different formats of the same file. Limited interactive editing capability. **List Price:** $79.95; $139.95 with Aegis Speed Speller. Published by Aegis Development, 2115 Pico Blvd., Santa Monica, CA 90405. (213) 392-9972. Requires 512K+. Not copy protected.

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Douglas Adams' Guide to the Macintosh

We're not exactly sure what we've got here— perhaps we asked the wrong question— but we think you're going to like this.

THERE'S A JOKE I REMEMBER that went around my school playground (this was a while ago, sometime during the long dark ages that stretched from the emergence of Australopithecus on the plains of East Africa, to the release of *A Hard Day's Night*) that went like this:

A man was giving a lecture on sexual techniques. There were, he said, eleven basic positions for sexual intercourse. "Two hundred and ninety seven!" interrupted a voice from the back. "The first of these eleven basic positions—," continued the speaker. "Two hundred and ninety seven," shouted the heckler again. "— is the one in which the man lies on top of the woman."

"Oh," said the heckler, momentarily flummoxed, "two hundred and ninety eight!"

I mention this for a reason, [*good— Ed.*], which is that I want to contrast for a moment the number of features on two different word processors. One of them is Microsoft *Word* 3.0, billed as the most comprehensive word processor yet—powerful, flexible, configurable to the demands of any professional writing task, it takes 600 pages of manual just to describe all its features (twice, admittedly).

The other word processor is *miniWRITER*, a desk accessory which only has about two features, one of which *Word* 3.0 hasn't got. And it's not a negligible feature either. As a professional novelist and occasional desktop publisher it's the first thing I looked for after I'd torn off the shrink wrap, and I discovered it wasn't there, I cursed and swore, went out for a sullen lunch and shouted at the barman.

"Something wrong, sir?" he said.

"Oh, nothing," I said gloomily. "It's just the new version of Microsoft *Word*."

"Ah," he said, wiping a glass sympathetically, "I expect it's the manual that'll be getting you down then, sir. I always tell my customers, 'there's nothing in life so difficult that a Microsoft manual can't make it completely incomprehensible.' One of my regulars —chap called Fred, per-

BY DOUGLAS ADAMS

Douglas Adams' Guide to the Macintosh

haps you know him, little wizened gray-haired fellow, about thirtyish—told me he'd been using *Word* 1.05 for two years before he discovered that you could search for carriage returns and tabs after all. He just thought they'd omitted it out of spite. But no, it was in there alright. It was even in the manual. Just not so as you could find it, that's all. It was his brother Jim as discovered it. He was doing three months solitary at the time. 'At least give me something to read,' he pleaded with the warders."

"Heartless brutes, they gave him a Microsoft *Word* manual. He was a broken man at the end of it, but he did know which page the Special Characters search routines were on, and there's not many as can say that. It's an ill wind."

"No," I sighed, "it's not just the manual."

He narrowed his eyes apprehensively. "My God," he breathed, "don't say they left out the word count again... Oh the *senselessness* of it all!"

"It's not even the word count," I said, "though God knows that's bad enough."

"Six of my regulars are journalists," muttered the barman, pulling a pint savagely, "I don't know how they're going to take it. I just don't know at all. It's the families I feel sorry for. The ones that have to live with them at the end of the day. Tragic it is, sir, tragic."

"Well, just think how I feel," I said. "I'm ... I'm a novelist."

The barman frowned, not understanding. "A novelist, eh?" he said. He held the bank note I'd paid for my drink with up to the light.

"Yes," I said. "I write a lot of dialogue."

"Go on, sir," he said.

"Well just think about it," I said. "Supposing I was going to write down everything we had said so far in dialogue form, and introduce it all with a joke..."

"What joke?" he said. I told him. He winced.

"Can you see the problem I'd have?" I asked.

"Yes, sir. I'd cut the joke," he said.

"No!" I said. "Well maybe. But that's not the point. Think man! Think of all those quotation marks!"

The barman frowned, still not understanding.

"Left quotation marks and right quotation marks," I insisted. "Remember how you get them?"

"Well, yes...." He frowned in concentration. "It's something like—left double quote is Option Left Square Bracket, right double quote is, er, let me see, Shift Option Left Square Bracket, or Option Left Curly bracket if you prefer, and then left single quote is Option Right Square Bracket and—er where was I? It's a bit complicated to remember ..."

"Why is there pain and misery in the world?" I said, "Why is the sky blue? Why is water wet? Why didn't Microsoft even put in a word count? These things are unknowable."

"Exactly!" I said. "And that is something that I have had to stop and work out *eighty* times so far just on this article! That's considerably more often than the letter 'g'. Eighty-two now."

"Well, yes," said the barman, "but it's only professional writers who are going to be bothered about putting in proper quotes isn't it? Only people who write novels, or do desktop publishing or typesetting or prepare camera-ready copy, or just generally care about what their printing looks like ..." He paused. "My God," he breathed, "I'm beginning to see what you mean ..."

"Ninety," I said.

"But listen," said the barman, urgently, "all you have to do is to type in the generic quotes and then do a quick search and replace routine at the end of the day. Well, four search and replace routines. A quote mark that follows any character other than a space or a single or double quote mark, or of course a single or double left or right quote mark..."

He looked aghast. "Isn't there some other line of work you could try?" he said. "I hear you were once a chicken shed cleaner..."

"Believe me, I've been tempted," I said. "We're up to a hundred and two now, by the way. No, the answer should be very simple. Just put in a routine that converts quotes as you type. It just looks at the context and does it automatically."

"But that would be insanely complicated," said the barman, "just think of the amount of code ...." He broke out in a sweat and took a soothing pull at his beer.

"About twelve lines," I said. "*MiniWRITER* does it, and that's just a desk accessory. So one way of getting round the problem is to do all your writing in *miniWRITER* and then paste it into *Word*. Makes some kind of sense doesn't it? Or of course you can use *Laser Author* version 2.00, which also features SmartQuotes. It's very easy to implement."

"Then landsakes," exclaimed the barman, banging his fist on the bar, "why haven't Microsoft put SmartQuotes into *Word* 3.0?"

"Why is there pain and misery in the world?" I said, "Why is the sky blue? Why is water wet? Why didn't Microsoft even put in a word count? These things are unknowable."

"You, sir, are a philosopher," said the barman. "You have to be in this business," I said and left.

That evening I was back. "I wrote it in *Laser Author* in the end," I said, taking a hefty swig of Perrier, "One thousand two hundred and seven words. One hundred and twenty-eight quote marks."

AS THE AUTHOR OF THE FOUR BOOKS OF THE HITCHHIKER'S GUIDE TO THE GALAXY TRILOGY, AND THE PERPETRATOR OF TWO INFOCOM TEXT ADVENTURES (HITCHHIKER'S AND BUREAUCRACY), DOUGLAS ADAMS NEEDS NO INTRODUCTION.

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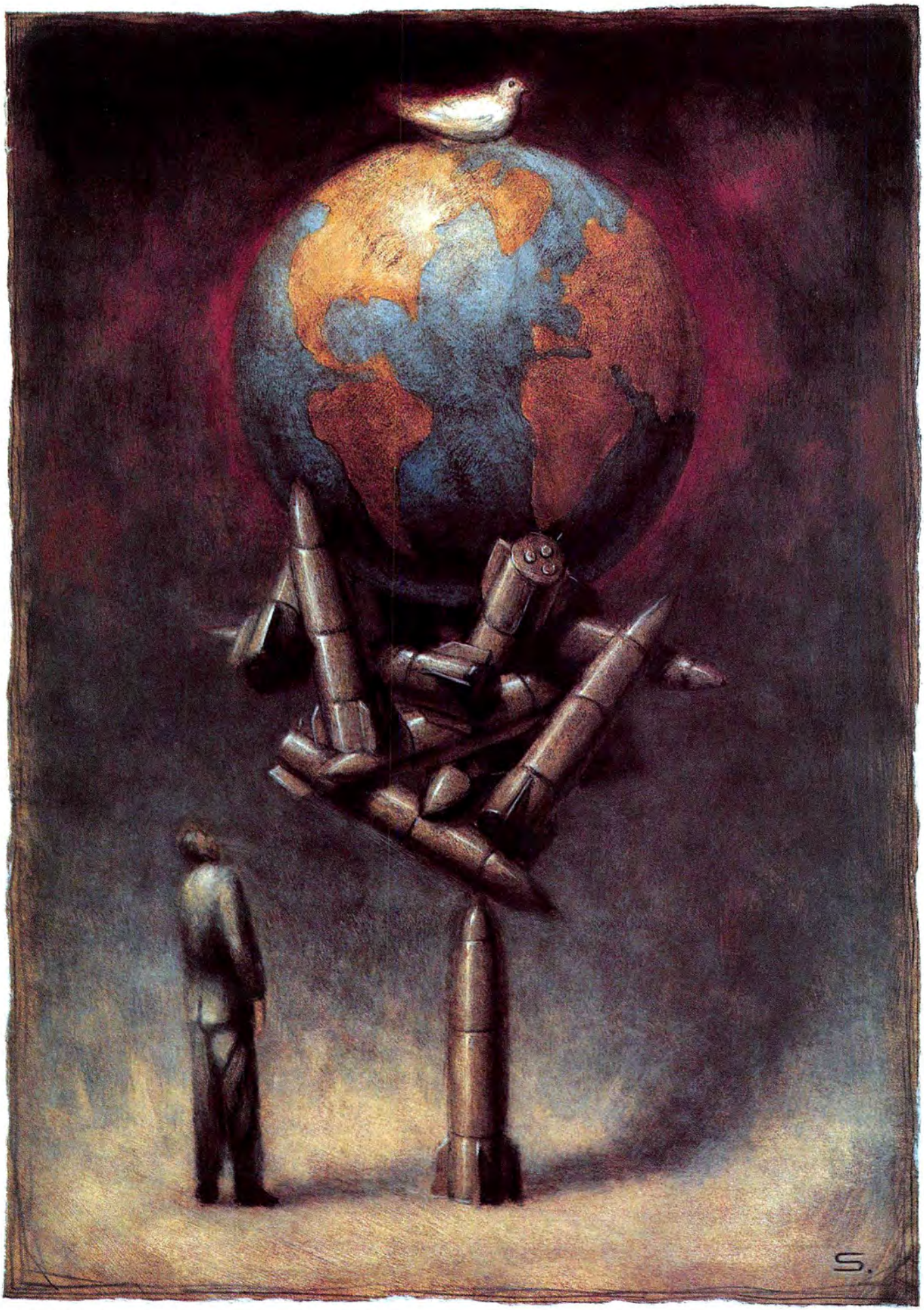

Winning the World

If diplomacy's not your strong point, try this very tactful guide to Balance of Power.

BY EZRA SHAPIRO

WHAT'S THE PURPOSE OF GAME software? Fun; that's sort of obvious (I hope). And sometimes education (a claim many publishers make and some smaller number actually deliver on). A good game transcends mere fun. It will painlessly educate, and it should be enchanting, even addicting. Few games are actually like that. However, Chris Crawford's *Balance of Power* (published by Mindscape and one of the first *MacUser* 5-mouse programs) certainly qualifies as such a beast.

Since its introduction in late 1985, this program has not only achieved great popularity but also aroused a storm of controversy. The game (a simulation of global superpower diplomacy) has been lauded by reviewers and educators, and it's been condemned by both the Left and the Right as philosophically "incorrect." Poor Chris has been hounded by interviewers and critics questioning his attitudes, prejudices and credentials as a political theorist. But precious little has been written about *Balance of Power* as a *game*. And that's what it is—a game, an awfully good game.

And it's a tough game, too. I've heard quite a few players complain that it's impossible to win at *Balance of Power*. That just isn't true, but winning does take a bit more thought and concentration than blasting aliens at your local video arcade. You *can* win—and win—if you learn a few simple strategies.

The formula for success is really pretty simple. Hang tough in your sphere of influence and don't mess with the Soviets in theirs, particularly during the first few turns. (You *are* playing as the Americans, aren't you?) Deploy your resources a step at a time rather than all at once. Your computerized opponent is looking for a record of ongoing support and is less likely to be belligerent if you're consistently firm rather than sporadically hysterical. Fight insurgencies in client states with everything you've got; respond to tendencies to *coup d'etat* with as much cash as you can spare. But above all, be conservative. Don't gamble.

Don't ever lose sight of how the game defines "winning" and "losing." If you're to have any chance of emerging victorious, the first goal of your policy has to be keeping the peace—surviving without launching a nuclear war. Increasing your prestige is thus a secondary consideration. After all, the name of the game is "*Balance of Power,*" not *"Global Takeover."* If you expect to score a massive victory—by kicking the Russians out of Africa, say—you're doomed to failure. Time and time again, Crawford stresses in the documentation that it's risky to be pushy; trust him. You'll find that a careful, conservative strategy slowly racks up the points. A more aggressive posture sets you up for a big loss.

STARTING OUT

There are four levels of play—Beginner, Intermediate, Expert and Nightmare. The Expert level is the true game as Crawford designed it.

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How To Play the Game

Balance of Power is a game of diplomatic confrontation, played on a map of the world. You choose to play as either the USA or the USSR; the computer takes the other side. Your goal is to increase your prestige and global influence while avoiding a full nuclear war. You prop up governments loyal to your position by providing foreign aid and military support, and attempt to undermine hostile governments by aiding rebels, launching covert operations and applying diplomatic pressure. Your computerized opponent does the same. You lose points when a country that supported you switches its allegiance to the other side; you gain points when you attract a country to your camp.

The central element of the game, though, is calling the other guy's bluff. Let's say the Soviets send troops to prop up a shaky Communist government. You believe that this is an act of provocation, so you protest to the Soviet government. If they back down immediately, no points are won or lost, and you've learned something about their intentions in that corner of the world. If they stand firm, you can either back down yourself—in which case *they've* learned something about *you*—or you can escalate the situation into a diplomatic crisis. You can go back and forth four times in any crisis. Each time, the seriousness of the situation increases, as do the points attached to the outcome. If both sides refuse to budge, well, you've got a nuclear war on your hands and the game ends—you've lost. If the Russians back down before you do, you register a victory in the eyes of world opinion, your score goes up, and the game continues. If you chicken out, their score rises.

The game lasts for eight "turns," each of which represents a year. In every turn, you get to challenge any Russian activities you find objectionable and determine your deployment of aid and military strength. They respond to your moves and launch new initiatives of their own. You proceed in this fashion, merrily moving from crisis to crisis.

If you must assume your opponent is more than a machine, think of it as Mr. Spock.

Both the Beginner and Intermediate levels are watered-down versions intended as training exercises. Don't feel you have to be able to win at the lower levels before advancing to Expert; use Beginner and Intermediate only to familiarize yourself with the game.

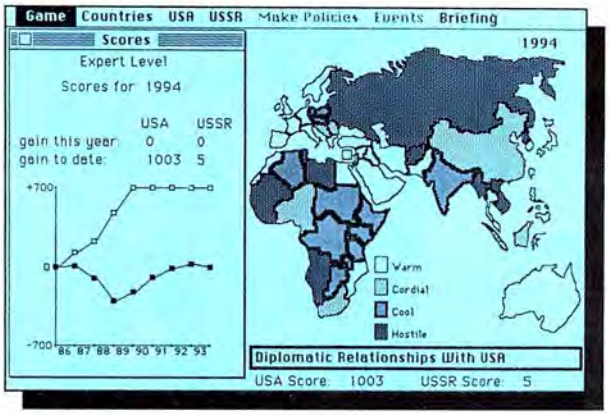
Don't worry if you're not too successful. I've found that it's actually tougher to win at the Intermediate level than at Expert. The increased flexibility of the full game gives you some leeway. The limited versions are constricted and frustrating.

The Nightmare level is for masochists only. Game play is identical to Expert level, but your opponent is foaming at the mouth—you'll die quickly and painfully.

Once you've played a few Expert level games, switch sides for a while. You'll learn that the imperialist Yankees can be as meddlesome as the war-mongering Russians—quite an eye-opener. You'll also see the strategy the computer uses when playing your side, which may give you a few ideas. Don't attempt to emulate the computer's tactics, however—it's testing your reactions with moves it would never allow you to make.

THINGS TO REMEMBER

Never forget that you're playing against a computer, not a human.



A winner! Note that the political alignment of Europe, Africa and Asia is still pretty much the same as at the start of the game. Keeping things even—stabilizing the world—can result in an impressive victory. This is a game of diplomacy, not conquest.

There's a great temptation to overthink the game, adding motivations and reasoning beyond the capability of any program. If you *must* assume your opponent is more than a machine, think of it as Mr. Spock. The steely logic underlying the game is unyielding. The computer never gambles; it merely assesses probabilities.

Strategy—Region by Region

Europe

Don't mess with Soviet Bloc countries—ever. If governments weaken in Italy, France, Spain or the UK provide moderate support; there's no danger of Finlandization there unless you're already being creamed. Troops and money for Germany can be cut if they're needed elsewhere. Turkey will probably need massive aid and troops, but will remain friendly. Sweden and Greece may need encouragement if you falter.

North America

You can invade Canada if you want. Nobody will mind.

Central America

Ignore Cuba. Resist Soviet overtures or intervention in Mexico, Honduras and Guatemala with everything you've got. It's not always necessary to protest Russian aid to Nicaragua since the Sandinistas are weak, and the Soviets will usually back down if you apply consistent, increasing pressure. Panama can be tricky, but even if you can't stop a revolution you can get points from Finlandization.

South America

Brazil, Colombia and Venezuela are usually stable, but may need massive aid; resist every Soviet overture above Trade Delegation. Moderate aid to Argentina will keep it stabilized even if Soviets send money. Peru can be lost easily; try the same policy as for Panama, but good luck. Chile usually pulls through with massive aid, but not if the Soviets are particularly feisty; never lessen support here.

Australia

No worries.

Asia

Ignore China and Afghanistan. Send economic aid to South Korea if it seems necessary; but troops can be cut. Japan might need a little military aid. The Soviets will meddle in the Philippines and might not back down; send troops, money, everything. The Russians are strong in Indonesia; your success will vary from game to game—no advice. India is only slightly better, but can be stabilized with money. Burma will usually be lost. Massive support is needed for Thailand and Pakistan; there's no chance to win if you lose them.

Near East

The Soviets will invade Iran; there's nothing you can do. Syria and Iraq are also likely targets for Russian intervention; it's not worth your while to get involved. Slowly build aid to Saudis, although they'll probably remain friendly no matter what. Some aid to Israel can be cut, but watch the Finlandization map carefully.

Africa

You *must* retain Morocco, Egypt and South Africa; keep building aid. A similar policy should be followed with Nigeria, but do it slowly. Write off Libya, Angola and Ethiopia. Slight prodding elsewhere in Africa can occasionally yield results, but don't expect more than short-term gains. Governments seem to change every three turns; let the Russians gamble, which they will.

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The computer will open the game by testing your mettle. Be prepared to challenge frequently, and take the first crises as far as you have to—some gut-knotting brinksmanship is necessary. But choose only confrontations you know you should win. If you challenge the computer's moves but back away quickly, it will assume you're weak-willed, and eventually push a trivial crisis all the way to nuclear war.

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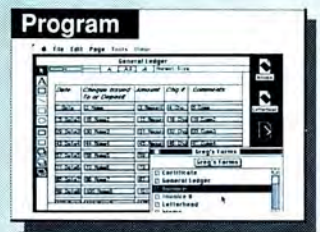

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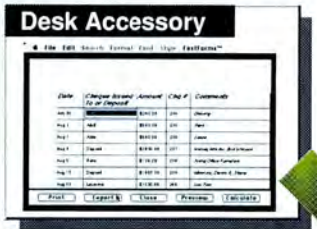

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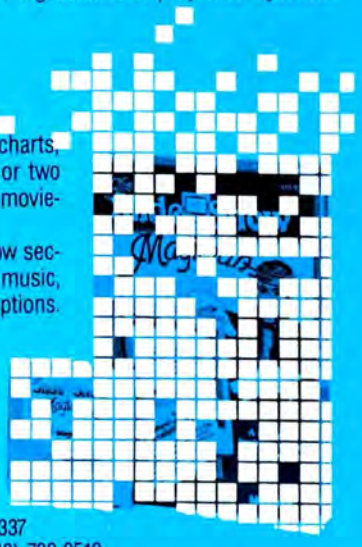

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Winning the World

great appreciation in the Third World. Bad move. *Balance of Power* takes a rather skeletal view of local politics. South Africa is merely a right-wing country with ties to the U.S.; apartheid doesn't exist as an issue. Pull out and a left-wing insurgency will place South Africa squarely in the Soviets' column.

Similarly, your policy in one country usually goes unnoticed in neighboring lands. If you send billions to Colombia and not a cent to Venezuela, the Venezuelans won't care.

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It's impossible to cheat at *Balance of Power,* but you can backtrack and redo a turn if you make a stupid mistake. So it's possible to learn from your errors and take a game through to its conclusion even if you foul up once or twice. Obviously, the biggest challenge is making it to the end of a game without a slip, but that's pretty difficult. If you suffer a diplomatic defeat, you can always select REDO LAST TURN from the Game menu; if you blow up the world, *Balance of Power* saves the game and you can reload it at the point just before you goofed.

You'll never be able to replay exactly the same game, because the program runs a few randomization routines before each move, but you can preserve a good-looking score through to the end.

NO EASY ANSWER

Because of the randomization, it's impossible to predict the course of a game, or to outline an invincible strategy. Sometimes the Russians will not give an inch, and you'll lose badly however intelligently you play. Sometimes everything will go your way. Much as it is in real life, you'll never know until you play it out.

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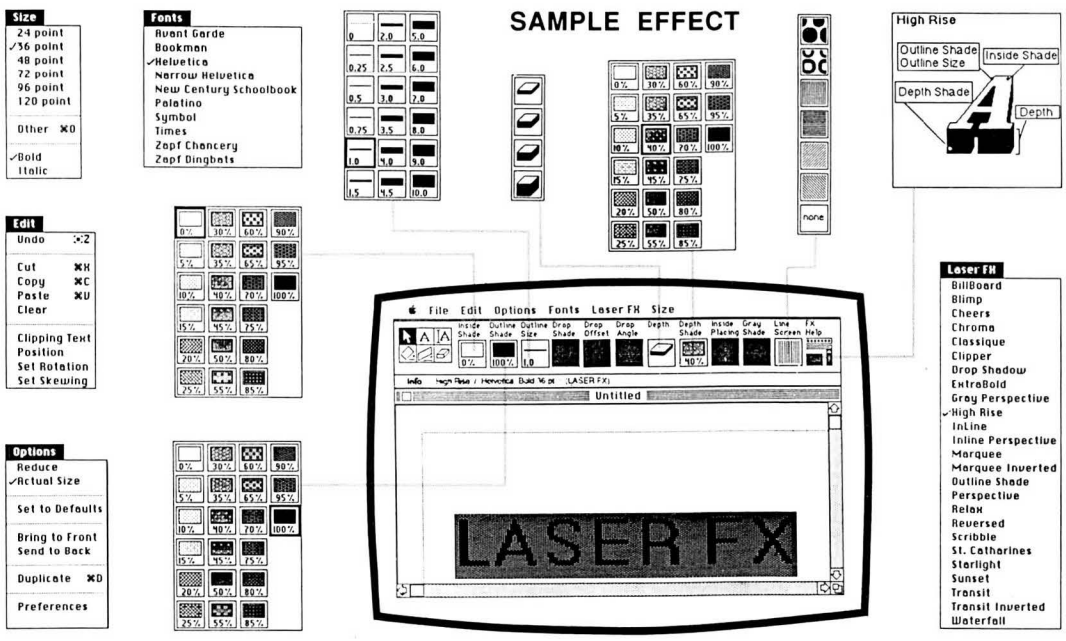

This is an example of one of the options available in **Laser FX.** We are using High Rise in this example to show how easy it is to use. The actual effect took 20 seconds to create and approximately 35 seconds to print. The screens above are actual reproductions of the options chosen to produce the effect seen on the right. We are using Helvetica®, one of the standard fonts found in the PostScript™ laser printer. As you can see by the various option windows above, there are millions of combinations of this effect (excluding point size, skewing, and rotation options). The examples on the right are a few of the 30 effects available on

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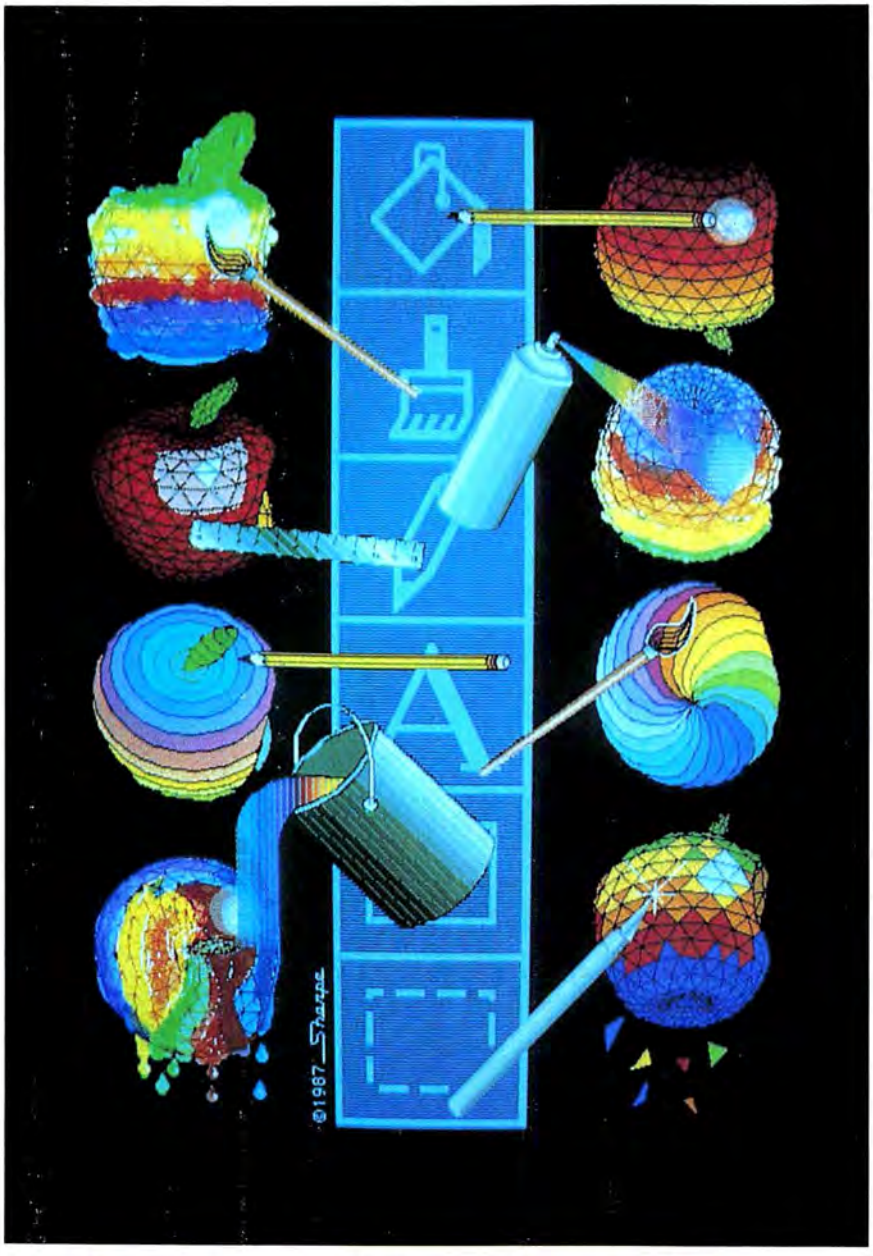


SuperPaint and GraphicWorks 1.1 slug it out, in a real cliffhanger.

BY CARLOS DOMINGO MARTINEZ

COMPETITION ALWAYS INVITES comparison. From Kenmore Square to Times Square you'll find the relative merits of Wade Boggs and Don Mattingly (not to mention Ted Williams and Joe DiMaggio) debated. Even when both competitors seem equally strong, what's "better" is always a hot topic of conversation.

Baseball fans aren't the only ones who thrive on comparisons. So it shouldn't surprise you that Mac users' discussions these days often turn to *SuperPaint* and *GraphicWorks* 1.1, two heavy hitters among paint programs. Like Boggs and Mattingly, these programs each go about their business competently and professionally. But, just as no two hitters are alike, *SuperPaint* and *GraphicWorks* 1.1 bring their own unique tools and techniques to the task.

THE PLAYERS

In the beginning there were paint programs and draw programs. Paint programs (like *MacPaint*) create bitmapped images, assemblages of dots on the screen. Draw programs (like *MacDraw*) produce object graphics, images constructed by mathematical formulas that describe their characteristics. Both *SuperPaint* and *GraphicWorks* 1.1 are second genera-

tion paint programs offering a combination of these imaging techniques.

SuperPaint constructs documents as two superimposed layers: a Paint layer and a Draw layer. Documents can be created exclusively in one layer, or as a combination of both bit-mapped and object elements. Images can be moved from one layer to the other as you work. When transferred to the object layer, bit-maps become a collection of dots (a "painted object"), that is simply held together as an object. Since no mathematical formula exists for this "object," it can be moved around but not manipulated as a "true" object. However, object graphics transferred to the Paint layer become true bit-maps. In the Paint layer they can be edited at the pixel level, but they can't be reconverted to true objects.

GraphicWorks 1.1, a totally new version of *Comic/GraphicWorks,* uses a modular approach. Panels, the basic building blocks, hold Easels (where images are created) and Balloons (text areas). Up to 64 separate Easels and Balloons can be in a Panel at once.

Easels are the canvas of *GraphicWorks* 1.1, where bit-mapped images are created and edited as in a normal painting program. Each Easel is a distinct entity. They are fully editable "painted objects." *GraphicWorks* 1.1 also produces object graphics, called Primitives. Primitives, possessing all the characteristics of true object graphics, are handled like Easels by the program.

This unique structural framework gives *GraphicWorks* 1.1 an exceptional degree of flexibility. Easels, Primitives and Balloons are easily moved around Panels. And Panels can be arranged in any fashion within or across pages. Individual parts of a document are organized according to their "priority level," allowing elements to overlap each other. Panels, Easels or Balloons at the front will have precedence over those at the rear. But, since each element maintains its own identity, changing the configuration of a document is simply a matter of "re-shuffling the deck." Individual Easels and Balloons are cut and pasted between Panels. And entire Panels, with all their components can be moved from one document to another.

This modular approach can be approximated in *SuperPaint* by creating small images in the Paint layer and then transferring them to the Draw layer. As painted objects, each small component of the document may be moved around as a whole.

DOCUMENT HANDLING

A document in *SuperPaint* is the electronic equivalent of an 8 by 10 inch sheet of paper. To produce two or three pages, you must work with each page individually. *SuperPaint* makes this easier than it sounds by allowing up to ten Document Windows, facilitating cutting and pasting between "pages." But since each page is a separate document, neither graphics nor text may extend from one page to another. Also, the number of open document windows is constrained by available memory. A 512K Mac is, in fact, limited to two open windows, a Mac Plus to seven.

On the other hand, a *GraphicWorks* 1.1 document is able to extend over several pages. And Panels, holding Easels or Balloons (or both), may themselves cross page boundaries, making it simple to create two-page illustrations. *GraphicWorks* 1.1 does not have all the power of a full-blown page layout program, but it has enough capability for many applications.

The size of a *GraphicWorks* 1.1 document is limited only by available memory and by the complexity of the document itself. Documents with a lot of detailed graphics will use up more memory, reducing the number of working pages. However, *GraphicWorks* 1.1 can operate only on one document at a time.

To compensate for its one-window environment, *GraphicWorks* lets the user open a Browse File. Through this mechanism, you can view other documents and transfer elements to your working document through the Clipboard.

THE TOOLS OF THE TRADE

Most Macintosh users will recognize the painting and drawing tools available in both *SuperPaint* or *GraphicWorks* 1.1. But each also has its own unique tools. For example, *SuperPaint* has its Arc, Perpendicular Line and Freehand shape tools, all missing from the *GraphicWorks* palette. *GraphicWorks* has its Air Brush, a more flexible spray tool that is adjustable from 1 to 96 pixels in diameter, in place of *SuperPaint's* more common Spray Can. Free Rotate, Skew, Perspective and Distort are tools in *GraphicWorks* and menu choices in *SuperPaint*. Both programs provide a selection rectangle and a Lasso, but *SuperPaint* goes one better with a dual-layer selection tool, a tool that can isolate (in bitmap form) a combination of layers. Both programs can "nudge" a bit-mapped image in one-pixel increments.

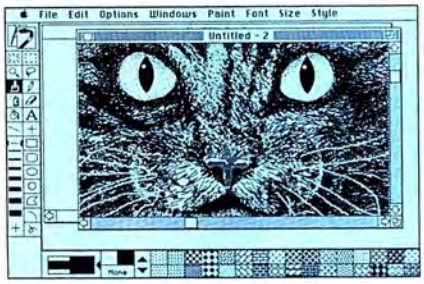
Four sets of patterns (including gray scales) are available through push buttons on the Pattern Palette of both programs. In *SuperPaint,* custom patterns can be permanently added to the palette by creating and saving them with all document windows closed. *GraphicWorks* 1.1 requires that you create a blank "template" document containing the custom patterns you wish to use with more than one document. The Tools and Patterns palettes in both programs can be hidden (allowing full-screen editing) or moved.

LETTERS MAKE UP WORDS

Like *MacPaint,* both programs can produce graphic text, *SuperPaint* in the painting layer and *GraphicWorks* within Easels. Each can also produce object text, which is easier to create and modify, and has the further advantage of printing as text rather than as graphics. Both programs provide reasonably complete text editors, with left, right or center justification, variable line spacing, different text styles and sizes, and text with pattern fills. However, *GraphicWorks* 1.1 really outshines *SuperPaint* in text handling. Its text is displayed in a variety of Balloon shapes and Balloons (in their Panels) can be expanded over more than one page. The only limitation is that Balloons cannot be dynamically linked with other Balloons on other Panels. Thus, text cannot flow automatically from a Balloon on one page to a Balloon on another.

A Tale of Two Palettes

A



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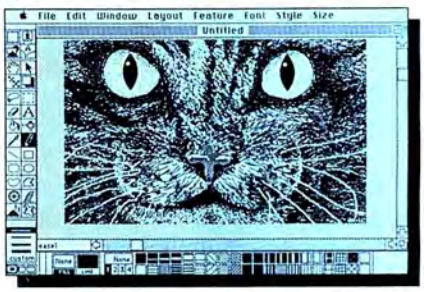


A familiar face peers out from the working screens of *SuperPaint* (A) and *GraphicWorks* 1.1 (B). The *MacUser* feline, transferred into *SuperPaint*'s Paint layer and *GraphicWorks*' Easel, respectively, will model a few of each program's features. *SuperPaint* supports multiple windows, each an 8 by 10 page. *GraphicWorks* 1.1 can look into only one document at a time, but it can have multiple pages.

INKS & PAINTS

Both programs allow a variety of special effects through the use of different types of inks. *SuperPaint* lets you paint in three ink modes. A Normal brush stroke will obscure whatever lies beneath. Transparent Paint sets down only the dark pixels in a pattern, permitting the background to show through. The Paint On Black option applies paint only on black pixels, producing a negative image effect.

GraphicWorks 1.1 includes these same modes, which it calls Matte, Or and BIC (Black Is Clear), respectively. *GraphicWorks* then adds several more modes. Copy leaves a white rectangle, similar to that of Graphic Text, surrounding the image. XOr will reverse the pixel directly behind any black pixel being painted. Not Copy, Not Or, Not XOr and Not BIC are negative image variations of these effects.

There is also a major difference in the way Ink and Paint modes work in each program. In *SuperPaint*, the various paint modes are Brush oriented while in *GraphicWorks* ink modes are Easel oriented. Thus, in *SuperPaint*, a single transparent brush stroke may be applied across an image. In *GraphicWorks*, to get the same effect, the single brush stroke must reside in a separate Easel set to Or ink mode. Again, the *GraphicWorks* approach encourages you to separate all the elements of an image into individual Easel-based components.

A LITTLE OF THIS AND THAT

FatBits was the critical component that permitted non-artists to use the Mac as a drawing tool. Both *GraphicWorks* 1.1 and *SuperPaint* incorporate FatBits into their repertoire and, to their credit, both also expand the concept. *SuperPaint*'s implementation is more elegant.

Clicking the Magnifying Glass tool on the image enables *SuperPaint*'s pixel-level editing. The left side of a split screen shows the image at normal size, centered at the spot of the click. The right side shows the same location at two times magnifi-

How Do They Stat Up?

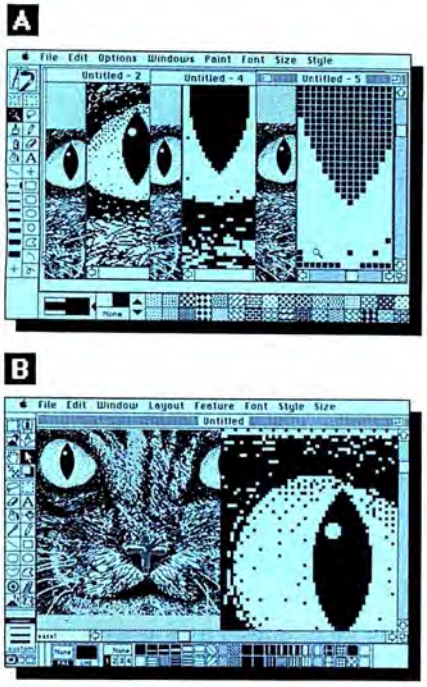
Comparing hitters is easy. You can always fall back on the numbers: average, RBIs, home runs. With software it's more difficult. Numbers are as subjective as the opinions they represent. Still, applying ratings to things discussed in the scouting report might be useful, since it will show at a glance the strengths and weaknesses of each program.

I decided to use a ten point must system (10 to the winner, a lesser number, usually 9, to the loser), like that used at prize fights. Some categories were so close I couldn't resist fine tuning to the half-point. Here are the results.

	GraphicWorks 1.1	SuperPaint
Players (environment)	9	10
Document Handling	10	9
Tools	10	9.5
Text	10	9
Inks	10	9
FatBits	9	10
Super Hi-Res	9.5	10
Low-Res	10	9
Image Portability	9	10
Printing	10	9.5
Documentation	8	10
Totals	**104.5**	**105**

Environment to *SuperPaint* on the basis of a cleaner interface. Document Handling to *GraphicWorks* because of its modular approach and greater capability. Tools was almost a tie, but I felt that *GraphicWorks'* Air Brush was worth at least half a point. Text to *GraphicWorks* on Balloon versatility. Inks to *GraphicWorks* on the basis of more modes. FatBits to *SuperPaint*, again, on cleaner implementation. The Magnifying Glass beats going repeatedly to the menu. Hi-Res to *SuperPaint* on ease of use, despite *GraphicWorks'* higher resolutions and larger images. Low Res to *GraphicWorks* due to its editable ThinBits. Image Portability to *SuperPaint* because it reads and writes more formats. Printing to *GraphicWorks*, on more features and options. Documentation to *SuperPaint*, more a loss by *GraphicWorks* than a win by *SuperPaint*, but by a good margin nonetheless.

GraphicWorks 1.1 won 6 out of 8 categories, due mostly to its greater number of features. Still, *SuperPaint* scored higher as a result of its superior attention to details. The closeness of the totals says something about how evenly matched these two programs are.



Our cat returns to model each program's FatBits capability. Both *SuperPaint* and *GraphicWorks* 1.1 have three levels of magnification. (A) shows them in three separate *SuperPaint* documents. (B) shows *GraphicWorks'* Medium Bits, equivalent to the center window in (A).

cation. A second click increases magnification to four times and a third doubles it again to eight. All tools are usable in the magnified area and editing is instantly reflected on the normal size image.

GraphicWorks 1.1 also has an array of magnification levels. Small Bits, Medium Bits and Large Bits yield 2X, 4X and 8X magnification, with all tools operative on either side of the screen, but they must be accessed from the Features menu.

SUPER HI RES

Both *GraphicWorks* 1.1 and *SuperPaint* provide a Super-FatBits environment that allows you to take advantage of the higher resolution of output devices like the LaserWriter. In use, *SuperPaint*'s version, called LaserBits, looks just like FatBits. But, whereas in standard FatBits each dot represents a screen pixel (one of 72 per inch), in LaserBits each dot represents one of the 300 dots per inch of LaserWriter resolution. Although the creation of LaserBits images begins in the Paint layer, LaserBits generates Painted Objects. Any number of LaserBit objects may be incorporated into standard *SuperPaint* documents.

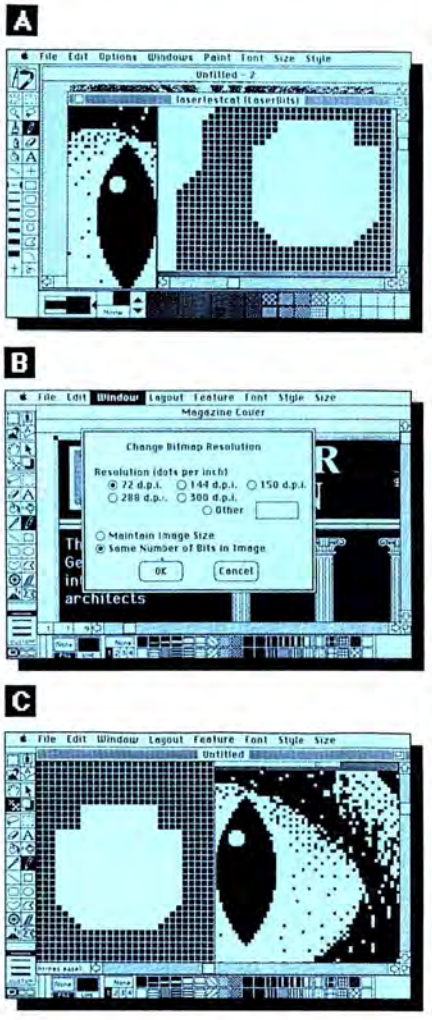
The large number of dots (more than eight times that of a standard image the same size) imposes a size limit of 2 inches wide by 2 ½ inches high on any LaserBit image. And *SuperPaint* can have only one LaserBits window open at any one time. Higher resolution also means a concomitant increase in the size of the file storing this information. Thus, *SuperPaint* saves LaserBit images separately. Some operations (like copying to the Clipboard and printing) will take a bit longer and require more disk space than with normal images.

GraphicWorks does it a bit differently. Any *GraphicWorks* 1.1 Easel that contains an image may be turned into a High Resolution Easel. The Bitmap Resolution command lets you set the resolution of a bitmapped image to any value from 72 dpi to the LaserWriter's 300 dpi and beyond. Thus, with *GraphicWorks* 1.1 it is possible, though very time consuming, to work at true typeset resolutions. *GraphicWorks'* High Resolution Easels are not size-constrained. Like standard Easels, they can be any dimension. Naturally, the larger the document the higher the memory requirements. *GraphicWorks* displays an out-of-memory dialog if the image you create outstrips your memory resources. And, of course, printing large high-res images will tie up your printer. An 8 by 10 image at LaserWriter resolution is the equivalent of 16 *MacPaint* documents.

LOW RES

The best way to judge the composition of a work in progress is to retreat a couple steps and look at the big picture. For this purpose, *SuperPaint* provides a split-screen Reduced View feature. The left side shows a reduction of the entire document, the right side remains a fully functional working area. Changes made on the right side are immediately updated on the left.

GraphicWorks 1.1's ThinBits, which also splits the screen, are unique in that both the full page view and the normal size area are completely editable. Since any tool may be employed and any operation performed on the reduced image, ThinBits may be used not only as a viewing tool but also as an editing and page layout tool. Another option, Proportional ThinBits, creates a ThinBits window that is in exact proportion to the page itself. And the *GraphicWorks* Show Pages command displays two pages at a time (non-editable) and is a convenient method for previewing multi-page documents.



***SuperPaint* has Laserbits (A), *GraphicWorks* 1.1 has High Resolution Easels (B). Either can smooth the "jaggies" out of our mascot's eye when printing on high-resolution devices. LaserBits lets you work at 300 dpi. *GraphicWorks* can create Hi-Res Easels at a variety of resolutions (C). FatBits can be employed with either for dot-by-dot editing.**

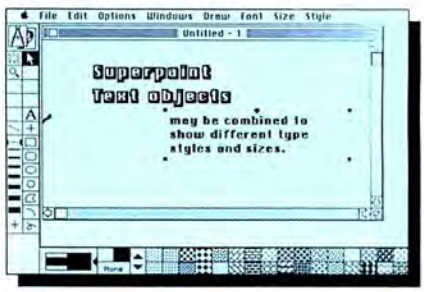
A Tale of Two Palettes

IMAGE PORTABILITY

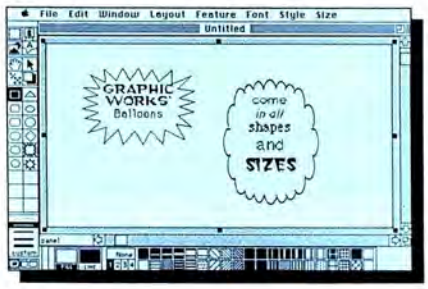
Both programs support data transfers through the Clipboard and Scrapbook. *GraphicWorks* 1.1, however, has some exceptions. Although Easels may be copied out through these channels, Panels and Balloons may not. To paste these into other documents you must save the entire page as a *MacPaint* file and use the *Art Grabber+* desk accessory (included) to cut the section you want.

Each program saves its images in its own proprietary format. However, both are also capable of reading and writing different dialects. *SuperPaint* can directly open (or save to) the start-up screen, *MacPaint* and PICT files. Originally, *MacPaint* documents were the only foreign files *GraphicWorks* could access. With version 1.1, the program can also read TIFF (Tagged Image File Format) files, a standard recently adopted by manufacturers of high resolution scanners. And PICT format files (retaining all their characteristics) may now be imported through the Clipboard with the new Paste as Picture command. *GraphicWorks* 1.1 can write files in either *MacPaint* or PICT format.

A



B



Each program includes a mini-word processor. Changing fonts and sizes in *SuperPaint* (A) requires a new text object. *GraphicWorks* (B) Balloons are more versatile.

AND SO ON TO PAPER

SuperPaint prints an exact reproduction of what appears on the screen. So, whichever layer is in front will remain so in the printed output. If the Hide Back Layer command has been invoked, the layer to the rear will not be printed.

GraphicWorks 1.1 again has a few more wrinkles. Images may be printed either as bit-maps or as a collection of objects. Since each object is sent to the printer separately, object printing (the default setting) is slower, but text prints as text, so images may be combined with the ImageWriter's near-letter-quality fonts. Bit-map printing reproduces the screen image exactly and prints faster but must be specified in the Print Options dialog box. This dialog also allows you to print a selected Panel, the alignment grid and to print your document as a greeting card.

THE BOOKS

The manuals that accompany these programs are even less alike than the programs themselves. The *SuperPaint* manual is clear, concise and easy to read. A little more depth and detail would have been useful, but overall it does a reasonable job of explaining the features of the program. Logical organization and an index makes it easy to find information.

GraphicWorks 1.1, more complex and, thus, more in need of a good manual, suffers from documentation that is less well conceived. Two manuals are provided. The first is a thin booklet describing the changes in version 1.1. The second, a larger book divided into tutorial and reference sections, is, in fact, the manual for version 1.0. Neither book does its job especially well. The 1.1 booklet barely explains the new features. The larger manual, an attempt to be comprehensive, is not a particularly well organized reference even to the original program. Locating information is not easy and the absence of an index does not help. The contents are at times at odds with the workings of the new version, which compounds the problem. The unfortunate result is that the program seems more difficult to use than it really is.

A

B

Both *SuperPaint*'s Reduced View (A) and *GraphicWorks*' ThinBits (B) let you step back and see the big picture. ThinBits has the advantage of letting you edit in the reduced image—great for page layout. The full-page views also illustrate how neatly both programs integrate text and graphics.

CAN THEY HIT A CURVE BALL?

Even good hitters have weaknesses. Both *GraphicWorks* 1.1 and *SuperPaint*, have a few things that could be added or improved. Most of these shortcomings or omissions have already been discussed in formal reviews of these programs, but they bear mentioning again.

SuperPaint could use the ability to rotate text in the Draw layer, a working Reduced View screen and the capability to shift both layers simultaneously. *GraphicWorks* 1.1, can't rotate its text Balloons either, but ThinBits is a fully functional page view, and by simply superimposing two Easels within a Panel, you can move them as one across a document.

GraphicWorks 1.1 could learn to read more file formats, work on more than one document, save custom patterns directly with the program and link Balloons for flowing text. *SuperPaint* is already a better linguist, supports separate documents on multiple windows and can save patterns independently of its

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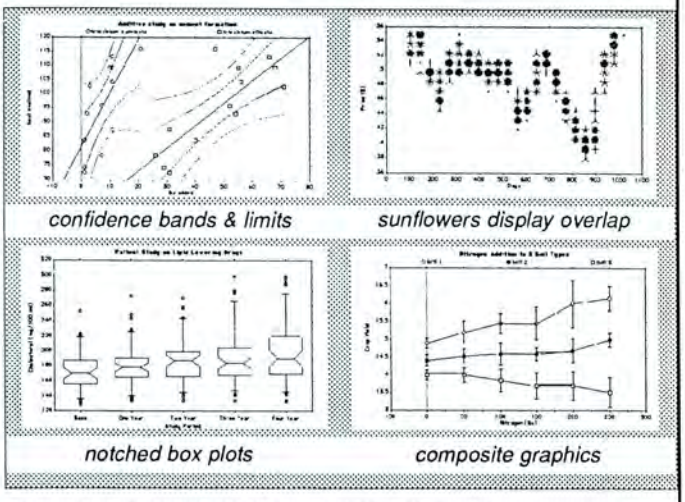

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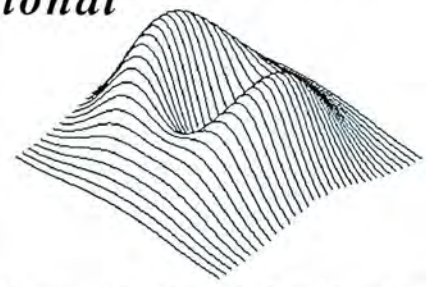

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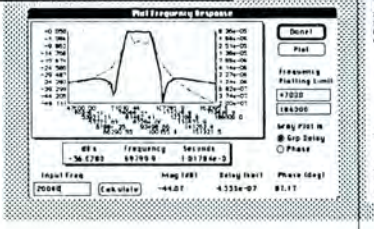

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A Tale of Two Palettes

Most Valuable Program?

After studying this scouting report, you might rightfully be wondering which program is the better player.

In some respects, I found *GraphicWorks* 1.1 better suited to the way I work. *Graphicworks* 1.1 gives me the ability to doodle on separate Easels on the screen. A horrible mistake on one Easel doesn't affect the rest of the picture. And the concept of moving Easels and Panels around electronic pages matches the way I think. But then, I'm not an artist.

For others, *SuperPaint*'s approach may be more suitable. A friend, who dabbles in illustration and has both programs, tends to use *SuperPaint* more. Most of his work involves single page fliers with simple text areas around a graphic element added for eye-catching interest. For his work, the single page integration of object text with the flexibility of bit-mapped painting works beautifully. *SuperPaint*'s second generation painting environment is so similar to *MacPaint*'s that the transition from one to the other was almost seamless. The increase in functionality has made his work easier and less time consuming, while improving the quality of his output. For him, the constraints on document size are liberating. He doesn't have to worry about Panels and Easels and Balloons. The page is there in front of him ready to accept his vision.

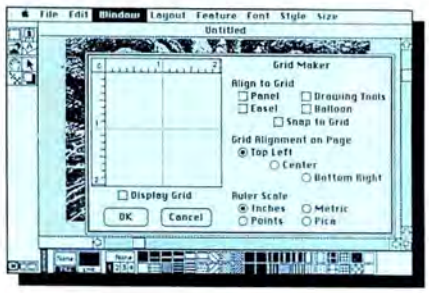
Again, he has both programs, likes them both, and uses them both. In fact, he has been known to transfer images back and forth just so he can use *GraphicWorks*' Air Brush. He just prefers *SuperPaint*. In evaluating which programs to buy, personal styles, preferences and needs are everything.

documents. Linking text objects is less important with *SuperPaint*'s one-page approach.

Interestingly, the shortcomings of one program often seem to have been addressed by the other. Probably the best suggestion would be that each program become even more like the other while still retaining its distinctive character.

A

B



Grids and Rulers make moving document elements with precision easy in either program. (A) shows the options available in *SuperPaint*, while (B) details those in *GraphicWorks*.

THE SCOUTING SUMMARY

SuperPaint's two-layer approach emphasizes its integration. It combines the strengths of both types of Macintosh imaging within a traditional context. *SuperPaint* is more the artist's painting tool. *GraphicWorks* 1.1 emphasizes a modular environment where images are brought together piece by piece and combinations of images collected into documents. *GraphicWorks* 1.1 is more suitable for such functions as page layout and designing multipage documents.

Both programs perform well, but *SuperPaint* is a little better behaved. *GraphicWorks* 1.1 sometimes seems to react unpredictably to your mouse clicks. I say *seems* because I suspect the program knows exactly what it is doing at those times. But neither the screen nor the documentation sheds enough light on what, in fact, happens. In every other respect, the program works fine.

Because it is so similar to *MacPaint*, most Macintosh owners will not have much difficulty adapting to *SuperPaint*. Using *GraphicWorks* 1.1, on the other hand, may require some adjustment. The program is not really difficult but the more complicated environment and the greater number of options make its use less intuitive. This complexity translates into power and flexibility, but if you don't need them, the extra features can just get in the way.

So what's a Mac user to do? How do you decide which one is better for you? First examine your own work patterns (see sidebar). Some insight in that area should make the decision more obvious. Then consider how fortunate a dilemma this is. It really is a lot like having to choose whether to add a Mattingly or a Boggs to your team. Either way, you're getting an MVP candidate. All you have to decide is whether you need someone to play third base or first.

CARLOS DOMINGO MARTINEZ, A REGULAR MACUSER CONTRIBUTOR, IS NOT NOW, NOR EVER HAS BEEN, A MEMBER OF THE ARTIST'S GUILD. BUT HE DOES DOODLE A LOT ON HIS MAC.

MACUSER RATING

SuperPaint ★★★★★

Follows Mac Interface	■■■■■
Documentation	■■■■□
On-Screen Help	None
Performance	■■■■■
Support	■■■■■
Consumer Value	■■■■■

Comments: Excellent integration of Painting and Drawing. Easy to use, straightforward in operation. **Best Feature:** Efficient two-layer performance. **Worst Feature:** Inability to edit in the Reduced View. **List Price:** $99.95. Published by Silicon Beach Software, Inc., 9580 Black Mountain Road, P.O. Box 261430, San Diego, CA 92126. (619) 695-6956. Not copy protected.

MACUSER RATING

GraphicWorks 1.1 ★★★★½

Follows Mac Interface	■■■■■
Documentation	■■◪□□
On-Screen Help	None
Performance	■■■■◪
Support	■■■■■
Consumer Value	■■■■■

Comments: Innovative combination of painting and page layout. Powerful features and modular approach to image and document creation result in outstanding flexibility. **Best Feature:** Air brush. **Worst Feature:** Documentation. **List Price:** $99.95. Published by Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062. (312) 480-7667. Not copy protected.

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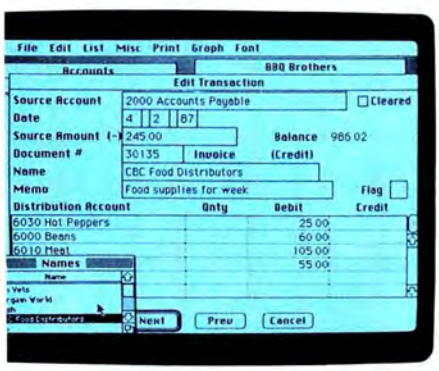

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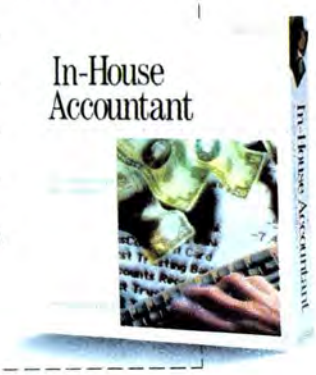

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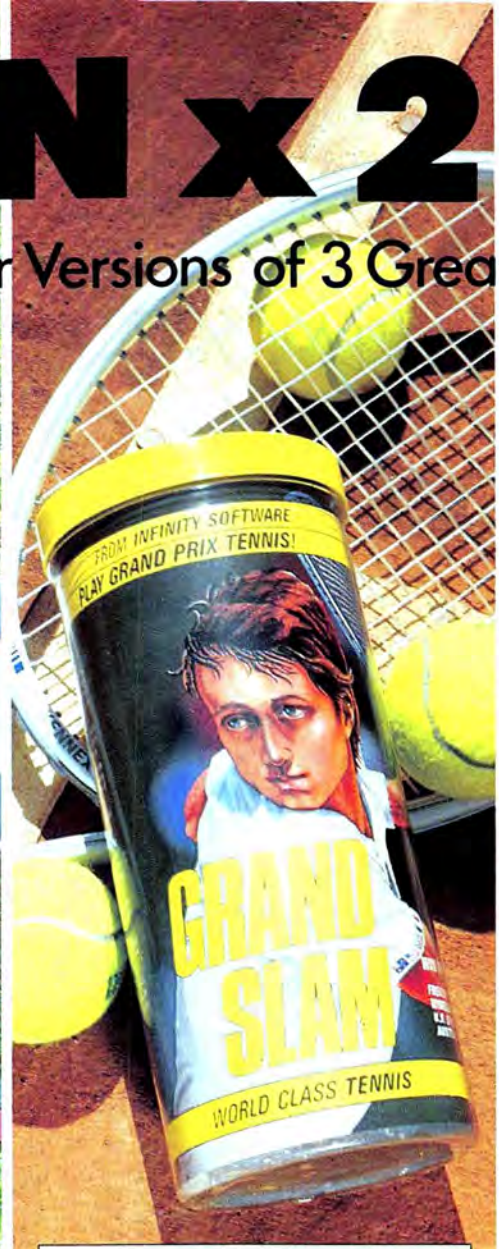

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Re-Inking the Situation

Are high ImageWriter ribbon bills a problem? Here are some hands-on techniques to help your budget.

DO YOU RECYCLE YOUR NEWSPAPER? Glass? Aluminum cans? Trash? For more and more people recycling makes sense. It's sound from both an economical and ecological standpoint. Have you ever thought about the ribbons you use in your ImageWriter? Do you just toss those expensive hunks of plastic and cloth when the print turns to gray? Think of the savings if you could only recycle your ribbons. Well, you can. How you recycle will depend on your situation. Here's a smorgasbord of recycling techniques for you to pick and choose from.

JUST THE FACTS, PLEASE

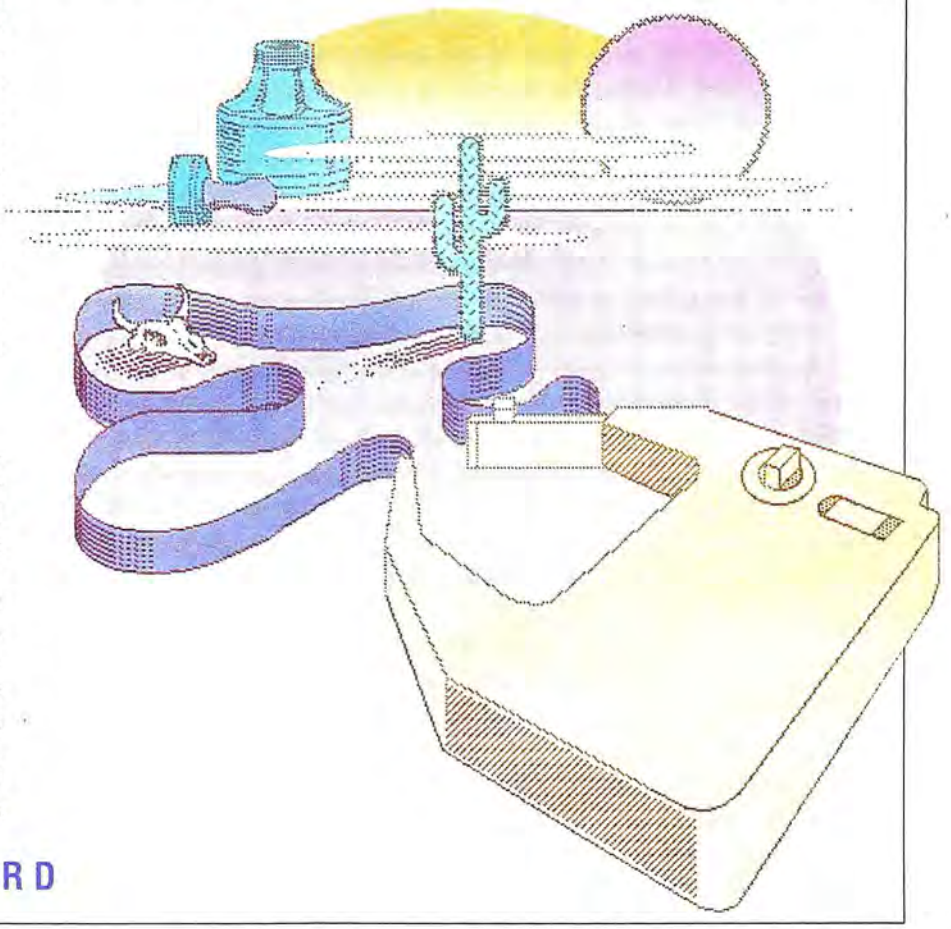
An ImageWriter connected to the Macintosh can produce near letter quality (NLQ) text and professional quality graphics. Considering the quality of its output, the ImageWriter is a very reasonably priced printer. However, it does go through a lot of ribbons—fairly expensive ribbons (they typically are priced between $6 and $8 for black ribbons; color is more expensive). One ribbon will print roughly 100 full pages of NLQ text before the ink becomes noticeably faint. You can wind up paying a lot of money for ribbons.

Ribbons can be purchased through a variety of mail order suppliers at a lower unit cost, but when you consider the shipping and handling charges, the price can still add up quickly. American Ink Products, and similar services, will re-ink your ribbon for around $3 to $4 each. When you send ribbons through the mail, remember to add the postage costs and the cost of your time (packaging them and then waiting on line at the post office). What you are getting is essentially a new ribbon, but the actual total cost may not be lower than the cost of new ribbons.

JOIN THE GREEN REVOLUTION

You can obviously save money by recycling your worn ribbons yourself. You can use a re-inking machine, solvents to spread unused ink or replace just the ribbon (not the cartridge). These methods take some time and often create a small mess, but they're not difficult and they do save you money.

If you decide to go the re-inking



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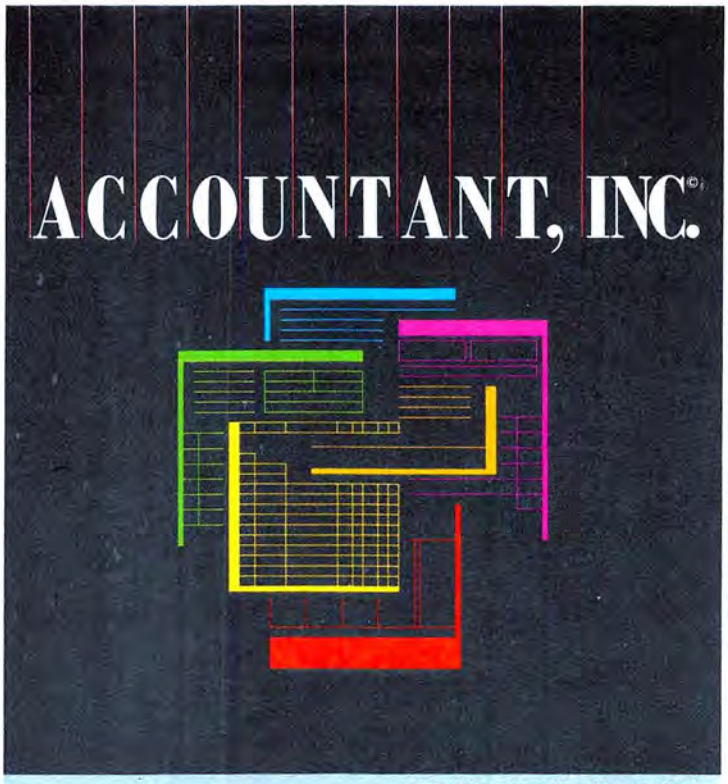

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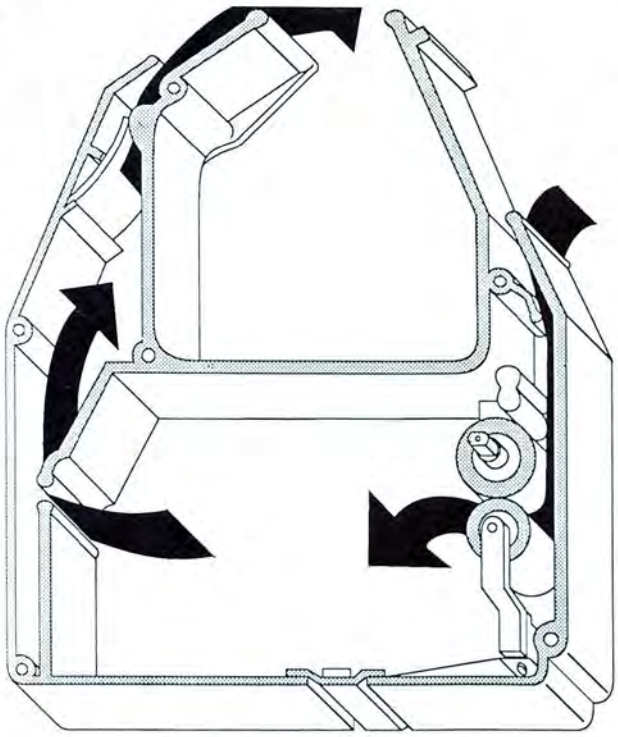


The ribbon feeds into the right side of the ribbon cartridge, between the tension wheels, into and out of the other side of the ribbon chamber and finally passes in front of the printhead.

route—an option more people are electing every day—you'll need a re-inking machine. Computer Friends, Bede Tech, Icon Review and others sell machines which actually and relatively automatically put new ink onto the ribbon cloth. The ribbon cartridge is placed on the machine, and the ribbon cloth is placed over an inking wheel. Ink is evenly spread over the cloth as the wheel spins. Soon your ribbon is like new and ready for use.

Although they'll revitalize your ribbon for pennies apiece, these machines cost $40 to $50. Is this expense worthwhile? For Mac users who print constantly, such as desktop publishers, re-inkers can be a bargain.

GO WITH THE FLOW

If you don't want to go to the expense of a re-inking machine, you can use solvents which redistribute the ink over the used part of the cloth ribbon. Since only the center one-third of the ribbon is actually used, a solvent such as the lubricant WD-40, or even rubbing alcohol, can be used to get another 50 pages or more of NLQ printing.

Start by opening the plastic cartridge. Since the cartridge is held together by pegs, carefully pry each one up a little at a time with a screwdriver to separate the cartridge halves. Be very careful. You don't want to break the pegs or cause the ribbon to spill out.

Inside you'll find the ribbon neatly arranged in a mass of coils feeding back and forth. It is fed into the cartridge by the tension wheels pushing the cloth into the ribbon chamber. The tension created by the wheels causes the ribbon to be drawn out the other side. As it comes out, it passes in front of the printhead where the printhead pins strike the cloth, forming the letters on the paper.

Spray the WD-40 (or whatever solvent you are using) lightly over the ribbon coils. Then reassemble the cartridge, place it in a plastic bag and let it sit for a few days. Turn the knob occasionally so the whole ribbon gets treated. That's it. Your ribbon is revitalized.

Don't worry about spraying too little, or getting the mass completely covered. The solvent will soak into the cloth and spread throughout the material, taking and spreading out the remaining ink.

CLOUDS ON THE HORIZON

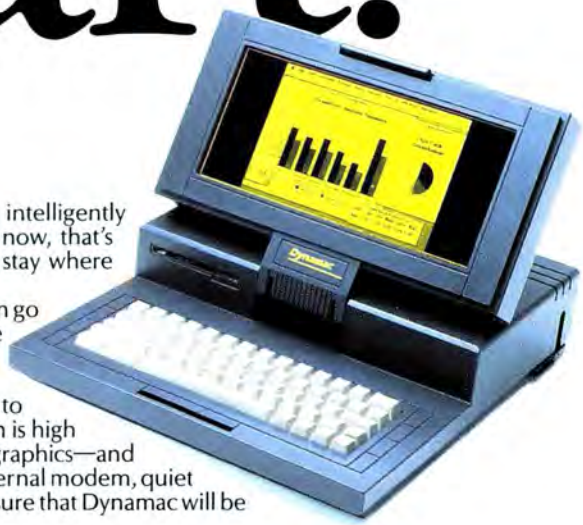
There's something you always need to keep in mind when recycling ribbons, whichever process you use. The more times you reuse the same ribbon, the greater the likelihood that the ribbon cloth will fray and possibly jam the printhead pins. You may save a few dollars on ribbons, only to end up spending $150 or more repairing the printhead.

The ribbon cloth can fray for several reasons. The continual impact of the pins striking the ribbon and the chemical reaction of the solvent with the cloth both contribute to the overall deterioration. Sometimes even the quality of the cloth can cause the fibers to unravel after some time.

Ribbon Replacement Options

Option	Cost	New	Recycled	Time	Advantage	Disadvantage
Retail	$6-8	✓		Varies	Convenient	Highest price
Mail Order	$3-5	✓		Days	Low price	Postage, time
Inking Service	$3-4		✓	Days	Low cost	Fraying, time
Inking Machine	$40-50+		✓	5-10 Min.	Unlimited inking	Machine cost
Solvents	$1-4		✓	10-15 Min.	Low Cost	Fraying, uneven
New Ribbon	$2.50-4	✓		15-30 Min.	Low Cost	Most complex

Smart.



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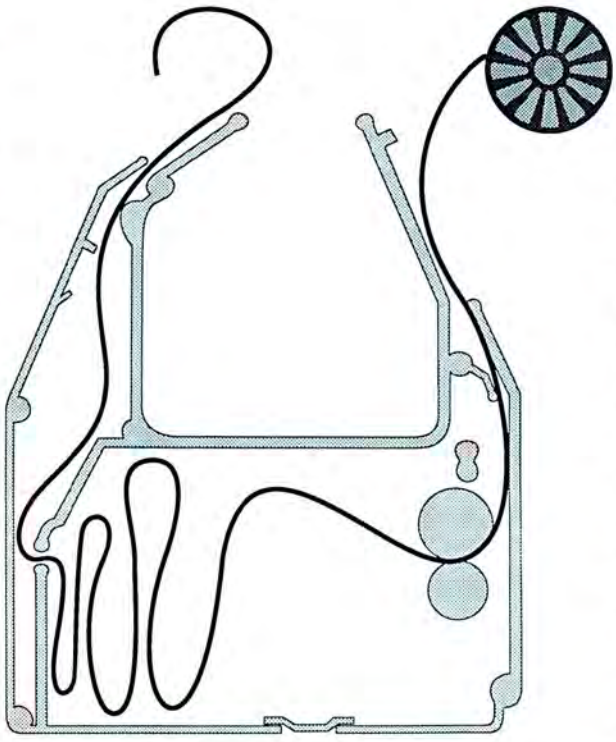
Re-Inking the Situation

When putting in your own ribbon, arrange it in a side-to-side pattern until the ribbon chamber is partly full. Then the ribbon is run between the tension wheels and out of the cartridge. Replace the top cover and feed in the remaining ribbon by turning the knob. Glue the ribbon ends together and the ribbon is ready for use.



YET ANOTHER WAY

Another possibility is to take the ribbon itself out of the cartridge and replace it. There are several options here. Some program manuals suggest replacing the actual ribbon with a cloth typewriter ribbon. Most stationers carry a wide selection of cloth ribbons in a variety of colors as well as black. Since the ribbons are typically priced between $2.50 and $4, you can replace an entire ribbon at about one half of the cost of a new one. This is also an easy way to collect an assortment of color ribbons without paying $10 or more each. But if you opt for this solution, you still have to worry about the ribbon fraying and jamming the printhead.

Be sure to buy good quality ribbons if you go this route. The few pennies you'll save on the low quality ribbons will not be worth much if the low quality ribbon causes a printhead problem. Get the good stuff.

Remove the old ribbon by opening the plastic cartridge and taking it out. It's as simple as that. The replacement typewriter ribbon should be fed through the left side of the cartridge, into the ribbon chamber through the narrow opening. Carefully arrange the cloth from side to side in a loosely coiled pattern, until the chamber starts to fill up. Then feed the ribbon between the tension wheels and out the other side. Close the cartridge and turn the knob to feed the rest of the ribbon inside. Full turns on the knob will cause the coils inside to be large, reducing binding and twisting.

Match up the ends and use a couple drops of Super Glue to join them together. The smaller the overlap, the easier the ribbon will move, both inside of the cartridge and when it passes the printhead. This whole process takes less than 30 minutes, and the ribbon is ready for use as soon as you're done.

Another, often easier way to replace the ribbon is to cut the old ribbon and glue the end of the new cloth onto the old. Then by simply turning the knob, the new ribbon is fed inside of the chamber. The old ribbon is expelled by pulling it out. Turn the knob until the joint is revealed, and cut off the old cloth (as well as the joint). Finally, connect the two new ends together.

HORSE SENSE

In addition to recycling or replacing the ribbon, there are a few other ways to extend ribbon life. Those ribbons not being used should be stored inside of a plastic bag (Ziplocs or other resealable types are best) to prevent the ink on the cloth drying out.

And plan before you print. Can this job use draft or standard quality printing? Both are easier on the ribbon. Don't print multiple copies when you don't have to; photocopy the first copy.

Be sure that the paper thickness setting on the ImageWriter is correct for the paper you're using. An incorrect setting will cause the pins to strike the ribbon with unnecessary force, possibly damaging or even tearing the cloth.

So it's time to start recycling your ribbons. Just pick the method best suited to your needs. Is there some program you really want, but can't afford? Recycle your way to it. Eventually you might even save enough money to buy a LaserWriter.

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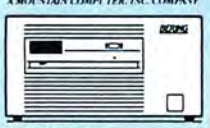

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by Dan Cochran

Answers From the Mac Team

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, *25 West 39th Street, New York City, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries.*

MORE SYSTEM UPDATES

Q. I own an original Fat Mac, with 512K of RAM and a 400K drive, and am trying to update to the new *System* and *MacWrite*. The store that originally sold me my Mac has gone out of business, so I have called around, trying to find a store that I can copy the updates from for free. I have been told that it would cost me anywhere from $50 to $100 for "labor," and I hesitate to pay for something I could do with a demonstration machine in 10 minutes. However, the real problem is that all the stores that I asked, once I told them I had a 400K drive, claimed that I was out of luck. They said that there was no way I could update my software. Is this true?

I called MacConnection, and they weren't sure, but they thought the new versions were on 400K disks. What is the true story? Is there any way that I can get the new updates? Is it reasonable for them to be asking for money to do the updates? I hope you can help me.

JOHN WALKER
BEDFORD, MA

A. *I wouldn't pay a cent to upgrade your system software. If you can't find a cooperative dealer there are many Macintosh user groups who get the latest* System *software from us just for this purpose. To find the closest user group in your area call (800) 538-9696. Ask for extension 500 and give them your ZIP Code.* (Editors Note: Please send us the name of the dealer who asked for $50 to $100 for labor before they supply the new (and free if you supply the disks) *System* software. We'd like to give them some well-deserved publicity, although I'm not sure it'll be the kind of publicity they want.—SB) *With a standard 512K Macintosh and a 400K drive you should be using* System *3.2 and* Finder *5.3 (see the updated chart). These are available on 400K media (I've sent you a disk).*

The latest System *software includes* System *4.1 and* Finder *5.5. This new software takes up more RAM and disk space than a standard 512K Macintosh can comfortably accommodate (and they do come on 800K disks).*

You should seriously think about upgrading your machine to a Macintosh Plus. Not only will you be able to take advantage of the new System *software but you'll be able to take advantage of the next generation of Macintosh software—much of which will require a Plus to comfortably run.*

UNIDISK DRIVES

Q. I own both an Apple IIe and a Mac Plus. Recently I purchased an 800K external UniDisk 3.5 drive for my Apple IIe. The drive looks identical to the Mac 800K external drive except for the ejection button. Is there a way to connect the UniDisk 3.5 drive to the Mac Plus? If so, can the 400K external Mac drive be connected to the Apple IIe? In theory it should work but doesn't. Please explain how to accomplish the above swap because the 800K drive is more practical on the Mac Plus.

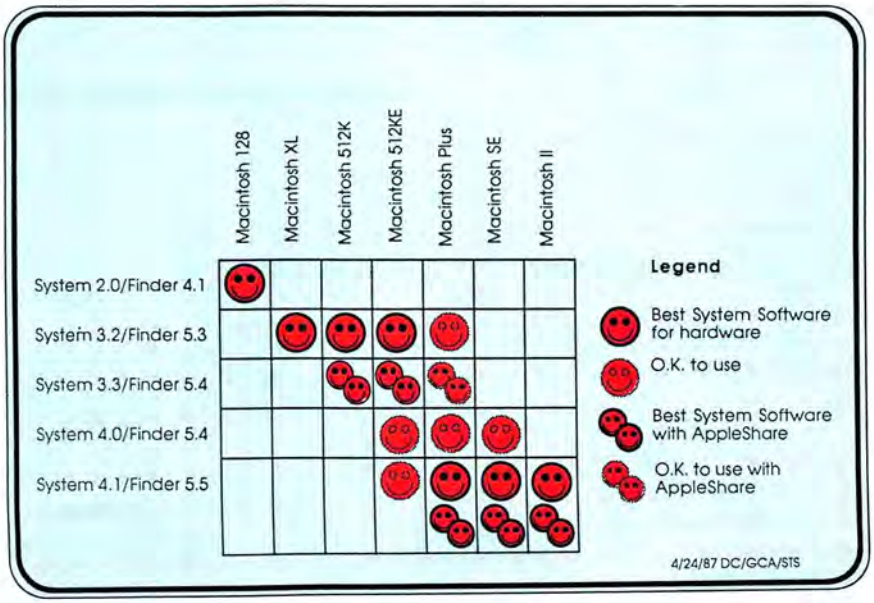
KENNETH J. DYMSKI
WINDSOR LOCKS, CT

A. *I assume you are talking about the original white-cased 800K UniDisk 3.5 drive that works with the Apple IIe and IIc (The newer platinum Apple 3.5 800K drives work with the IIGS and the Macintosh—but not the IIe or IIc). You can make the UniDisk 3.5 drive work on your Macintosh Plus. You'll void your warranty but, with the exception of the case disassembly, the modification is quite simple. Basically, what you need to do is to give your UniDisk 3.5 drive a lobotomy. Your UniDisk drive housing contains the drive itself and an intelligent controller card. The cable that runs into your UniDisk is connected to this controller card. The controller card has a similar cable that connects directly to the drive.*

The lobotomy procedure simply involves bypassing the controller card. Disconnect the cable from the controller card, disconnect the controller card from the drive and connect the cable directly to the drive. Reassemble the housing and you should be able to plug this directly into your Macintosh Plus external drive port.

Although I haven't verified this, you probably won't be able to use your 400K Macintosh drive on your IIe. Even if you hooked it up in conjunction with your now unused UniDisk controller card, the card is still thinking in terms of 800K volumes.

Recommended System Software Configurations



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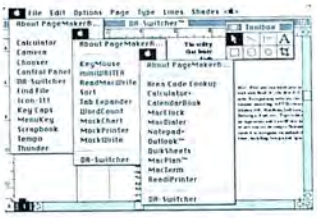

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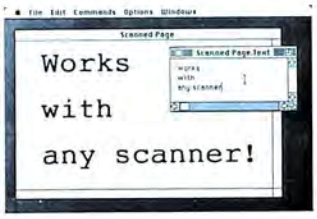

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XY PLOTS/EXCEL

Q. I'm trying to create an X-Y scatter plot using *Excel*. I have been unsuccessful in this venture despite much research into manuals and texts. I want to set up two columns of numbers—one column for the value axis and one column for the category axis and let *Excel* plot the ordered pairs using the Scatter or Line commands from the chart gallery.

Any ideas on how to accomplish X-Y plots with *Excel?*

JOHN REMENSNYDER
TEQUESTA, FL

A. *Your request sounds easy and certainly reasonable, but I couldn't figure out a way to do it either. A call to Microsoft's Mike Slade (the former product manager for* Excel*) resulted in this solution:*

1. Enter your X values in Column A.

2. Enter your Y values in Column B.

3. Select and Copy all the values in both columns.

4. Select NEW *from the File menu and* CHART *from the dialog box. Click OK.*

5. Select PASTE SPECIAL *from the Edit menu.*

6. Select both CATEGORIES IN FIRST COLUMN *and* VALUES IN COLUMNS *from the dialog box. Click OK.*

7. Select SCATTER *from the Chart menu and click OK. That's it.*

The key here seems to be in copying the data as opposed to simply selecting it and creating a new chart. I'll leave it as an exercise to the reader to explain this behavior. And thanks again to Mike.

SWITCH-LAUNCH

Q. When I launch an application from the desktop, how can I prevent the disk that holds the application from becoming the current start up disk? I would like to be able to maintain the start up disk with which I started and would prefer not to remove the System folders from all my application disks. Is there an easy way to accomplish this goal?

JON KOOMEY
BERKELEY, CA

A. *Since there are so many possible situations (for example, hard disk and single floppy, hard disk and multiple floppies, multiple hard disks, single floppy, multiple floppies, etc.) I'll simply review the logical sequence* Finder *5.5 goes through to determine which* System *is, or will become, the current one.*

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switch-launch (holding down the Option key) or whether the application itself is requesting a switch-launch. Applications can set a specific flag which instructs the Finder *to always switch-launch to their resident volume. Apple's* Installer *is an example of one such program. If either of the above is true, proceed to Step 4.*

3. If neither the user nor the application is requesting a switch-launch the Finder *checks for volume types. If the current* System *is on an ejectable volume (a floppy), proceed to Step 4. If the current* System *is on a non-ejectable volume (a hard disk), launch the application using the current system.*

4. Check for file servers. If the new application is being launched from a file server, control will never transfer. The application is launched using the current System.

5. Check for the presence of a "blessed folder" on the volume containing the newly launched application. There must be both a Finder *and a* System *file inside this folder. If either is missing the application will be launched using the current* System. *If both are present all conditions for a switch-launch have been met and the application will launch using the new* System.

If you are working with a dual-floppy system there is really no easy way to prevent switch-launching between applications that are resident on disks with System folders. You can rename the System, *the* Finder, *or the System folder itself before you launch or you can remove the System folder from the disk (Special note: If you're using* System *4.1, the* System, Finder *and certain other* System *files have been designated as* System *files in their* Finder *info bits. This makes it impossible to rename those files. Either use* ResEdit *to turn off the system bit or use* Fedit *or a DA like* DiskInfo, DiskTools *or* DiskTop *to change the names.)*

The logic of this System *selection scenario is to handle the worst-case scenario where a user with a single-drive System ends up pulling code resources from one volume, system resources from another—and hair between disk swaps.*

If you are using AppleShare *be careful not to switch-launch to a* System *and/or* Finder *that doesn't support it (e.g., accidentally switch-launching from* Finder *5.5 to* Finder *4.1).*

SET STARTUP

Q. The Set Startup command in the *Finder* is used for direct start up to a specified application. Is there any way to start up to a specific document of that application?

I'm designing macro-applications in *Excel* and it would be easier for less experienced workers to be able to start up to a macro menu listing of the various routines and their key equivalents.

R. MCCARTER
SANTA ANA, CA

A. *You're right. The* Finder's *Set Start up command only allows you to*

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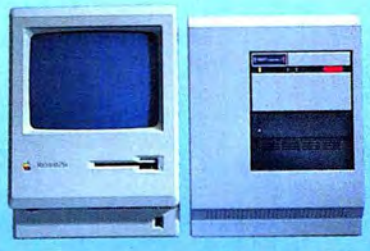
MASS STORAGE TO THE MACS.



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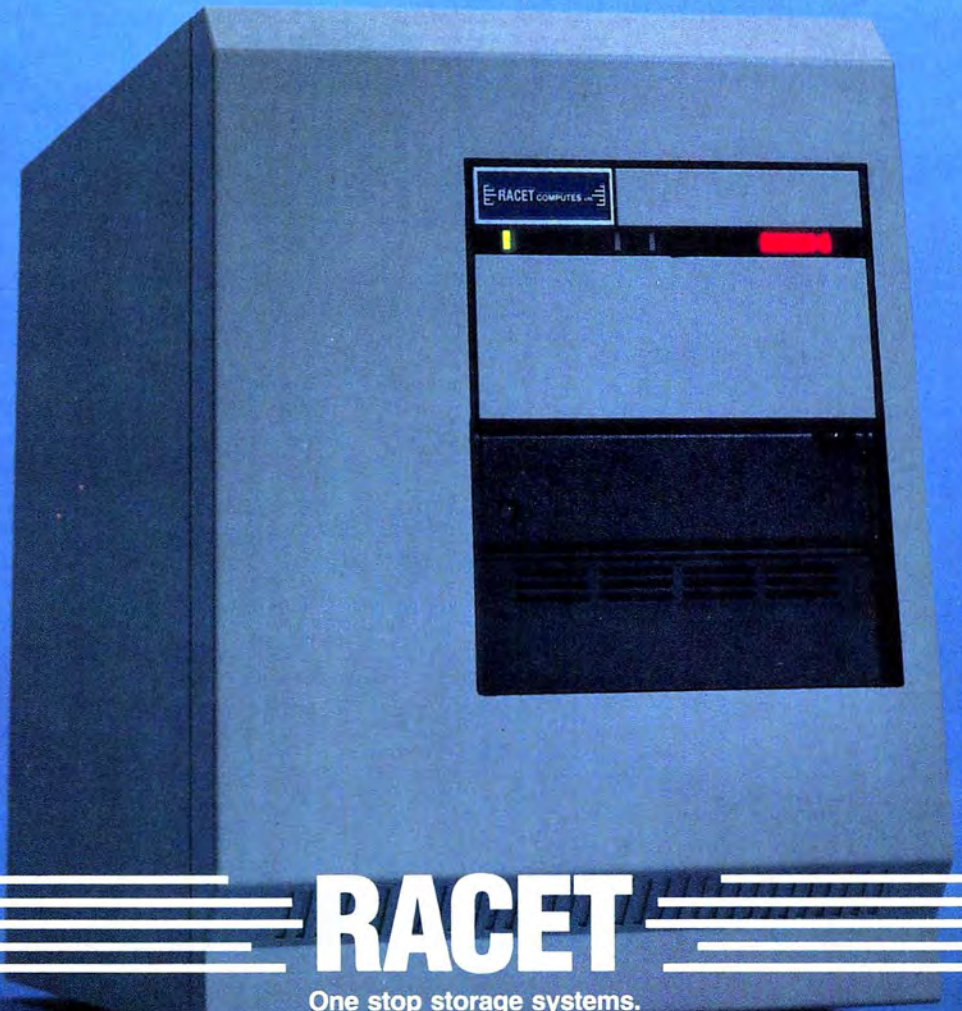


RACET

One stop storage systems.

RACET Computes, Ltd./1855 W. Katella, Suite 255/Orange, CA 92667/(714) 997-4950/TLX 701160

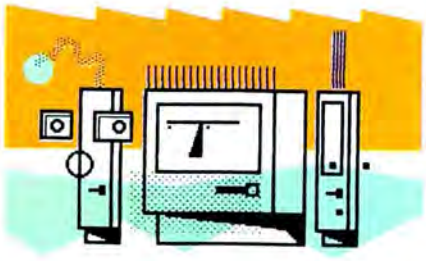
specify the specific application you wish to run when you boot your Macintosh. It doesn't allow you to start up to a specific document. The name of the start up application (usually the Finder*) is stored in the boot blocks of each disk or volume. The start up code can only deal with launching applications—not documents.*

Here are a few alternatives:

1. A few enlightened applications, like Switcher, *allow you to specify a document with a special name that will be loaded whenever you launch the application or when the application is auto-launched by the Set Startup command. Create a* Switcher *set with your attached document and make sure you name the set Switcher.Startup. If you then select* Switcher *as the start up application it will automatically load* Excel *together with your specified spreadsheet.*

2. Tempo, *a macro processor for the Macintosh, has the ability to automatically play back a predefined macro at start up. The macro can be any combination of keystrokes, mouse movements and mouse clicks. I've found this procedure to work very well as long as you don't move around icons on the* Finder's *desktop.*

3. *Bill Steinberg once hacked out a wonderful little utility called* Launcher *(it's available as part of* Quick and Dirty



Utilities, Volume *2 from Dreams of the Phoenix) which does exactly what you want.*

HD CRASH AND REMEDY

Q. I recently purchased a Mirror Technologies hard disk and formatted it with HFS. In trying to run *PFS File,* the system crashed and was severely affected. I had to erase the entire hard disk, reformat it in HFS and reload all documents and applications. I imagine that this might happen due to the incompatibility of *PFS File* and the HFS file structure. I would like *MacUser* to publish a list of programs which are known to be incompatible with HFS. Also, is there any explanation for this phenomenon?

JOHN J. BROOKS
PHILADELPHIA, PA

A. *It's very unusual for an application to take out an entire hard disk. You might have a system crash, have to reboot, and end up having to throw away some garbage files when you get back to the* Finder. *For any application to trash an entire volume is bizarre; I can't explain it without more information.*

When a harddisk volume is damaged, there may be cases where you can repair it without having to reformat the entire volume. You should be able to pick up from your dealer a copy of Disk First Aid, *an Apple utility that ships with our own HD-20 SCSI hard disk. This utility may work with your Mirror Technologies drive and allow you to recover from less significant hard disk failures without the attendant grief that comes with a complete reformat and reinstall.*

[Editors Note: We are gathering together a list of products that are not HFS compatible and that the publisher has no plans to upgrade to HFS compatability. Look for this list in the next issue or two. We haven't published such a list before because many publishers were upgrading their products. Some were taking much longer than others, however. Now that the situation is stabilizing, we'll let you know what to stay away from.]

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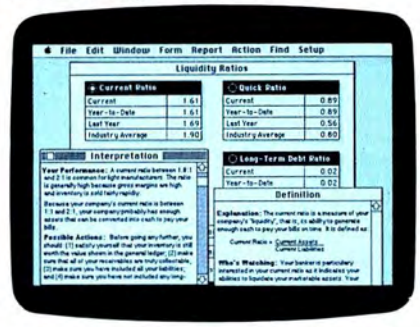

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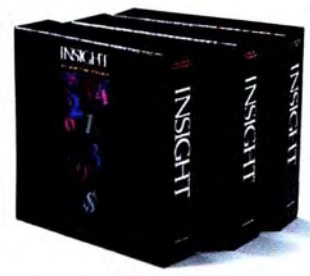

INSIGHT

ACCOUNTING SOFTWARE BY LAYERED

*InfoWorld, October 20, 1986.

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TIP SHEET

COMPILED BY DAVID SCHARGEL

Found a trick, shortcut or a smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o *MacUser*, 25 West 39th Street, New York, NY 10018. We pay at least $25 for every hint we publish, plus we'll print your name and hometown.

WORD 3.0

When working in *Word* with a number of documents, use OPTION COMMAND-[(left bracket) to quickly tile the active window. The first two windows will each tile ½ the screen vertically, the next four will tile each ¼ of the screen and the rest will tile from the center of the screen.

JIM VOORHIES
WHITE BLUFF, TN

When using *Word* 3.0 on the Macintosh SE, once you have established the criteria for your Find command, you may close the Find dialog and use the equal key on the numeric keypad to search for the next occurrence.

BILL JASTRAM
TUALATIN, OR

MACWRITE

MacWrite, version 4.5, has an annoying habit of incorrectly adjusting the line spacing of all lines that contain subscripts. The very simple solution to this problem is to specify, in the ruler, that the text to follow is to be 6 lines per inch. When this is done, all lines will have the same line spacing. Use the line spacing icons (1, 1 ½ or 2) to adjust the way you like it.

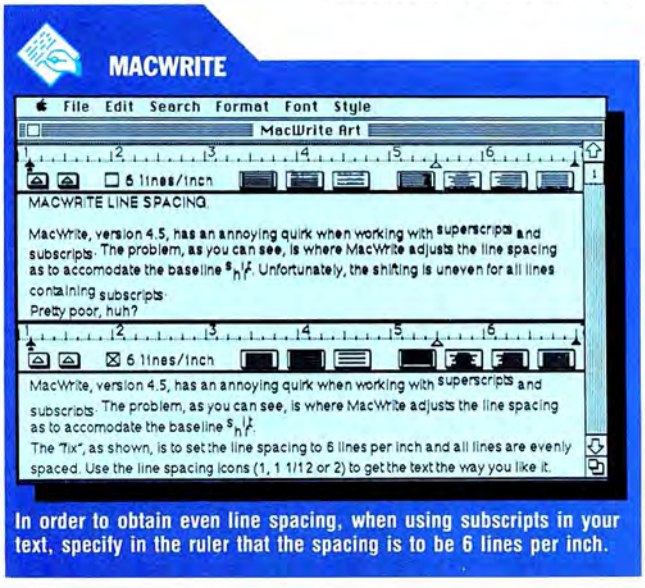
ROBERT PREECE
MT. RAINIER, MD

MACMONEY

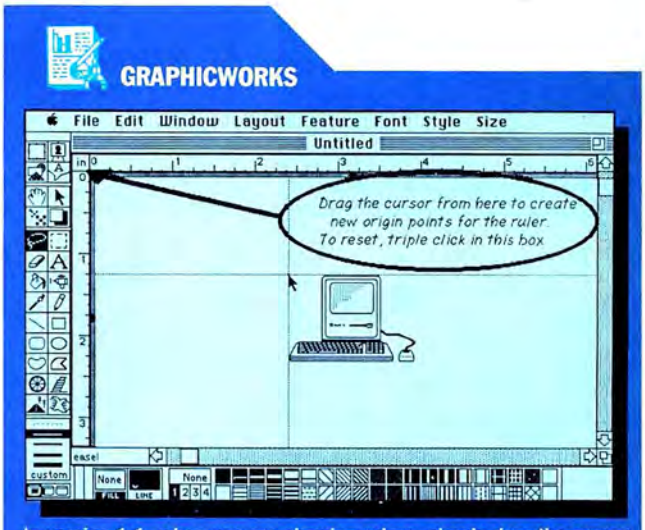
The *MacMoney* manual doesn't explain how to use the program with only one 800K disk drive. When creating a new "system," *MacMoney* won't allow the data files to be saved on the same disk as the program. Once the "system" is created on a 400K disk, simply copy it and the data files onto an 800K disk.

If you use *MacMoney* on an 800K disk, it will not allow for the usual maximum of 3000 transactions allowed on a 400K disk. To fit more transactions on the disk, create a *MiniFinder* and remove the *Finder* and fonts and desk accessories.

CHARLES CALDWELL
CORTEZ, CO



In order to obtain even line spacing, when using subscripts in your text, specify in the ruler that the spacing is to be 6 lines per inch.



In version 1.1, when you are showing rulers, simply drag the cursor from the ruler corner (where the current unit is shown) to reposition the X and/or Y axis zero (or origin) points. To set the origins back to their original positions, simply triple-click in this corner.

GRAPHICWORKS 1.1

With *GraphicWorks* 1.1 you are able to specify the new origins (zero points) on either the horizontal or vertical rulers by dragging the cursor from the ruler's corner box. If you do not like your changes, it is not easy to redrag the zero point back to its original place. A trick for doing this is to triple-click in the ruler's corner box and both rulers will be set to the original zero point.

ROBERT PREECE
MT. RAINIER, MD

Using *ResEdit*, you are able to edit, and thus, permanently change any of the default patterns in *GraphicWorks*, version 1.1. Enter *ResEdit* and open a copy of the *GraphicWorks* application. You find a resource of type PAT# (Pattern List). Double-click on the PAT# line and then double click on any of the four palettes that appear. The editor that will appear is similar to using FatBits in *MacPaint*. The current pattern being edited is shown in the bottom center of the window. Click on the pattern to its right to make that pattern the one that is being edited.

KEN JONES
SAN DIEGO, CA

ZBASIC

If you're using the Edit window and make a number of changes to various, nonsequential line numbers, simply use COMMAND-E twice and all lines and line numbers will be placed in their proper locations.

MIKE DIEHR
CLAREMONT, CA

SYSTEM 4.1

You can use COMMAND-PERIOD to cancel *all* standard dialog boxes (the dialogs you get when you choose OPEN or

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Charles Solazzo

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"We will enhance our graphics with scanners, plotters, cameras, color reproduction and a CORA system front-end.

"So when the phone rings, Levine answers, 'Yes, we provide laser-printed output, but if you need higher resolution, we *do* have a Linotronic 300 laser imagesetter."

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This ad was composed on a Macintosh and output on a Linotronic 300 laser imagesetter.

Linotype

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SAVE). This will work for all applications.
IRIS DONITZ
PLANTATION, FL

MACDRAFT

Diagonal dotted lines normally print poorly on a LaserWriter. However, you can produce quality diagonal lines with *MacDraft*. Here's how.

Start by editing a pattern so that most of the pattern is black, with a one or two pixel column (or row) being white. Once that is done, confirm that you are drawing with one of the non-dotted lines, and choose that special pattern you have drawn as the ink for the line. This is done by holding down the Option key while selecting the pattern.

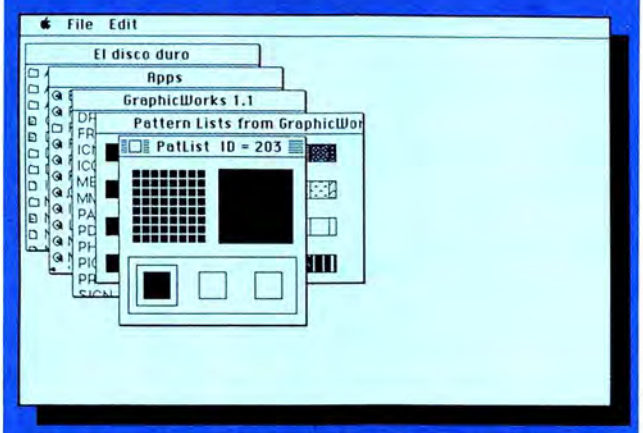
Try drawing a few diagonal and/or dotted lines. Later, you can alter the special pattern for better control over the depth of the pattern.
ZHONGPING CHEN
ITHACA, NY

MICROSOFT BASIC COMPILER

Every program compiled by the *Microsoft BASIC Compiler*, when run, immediately displays a window upon startup. A lot of the time this window differs from the main window of the program you wrote. Besides that, this window is a dead giveaway that you wrote your program in BASIC. Using a disk/file editor application, you can patch your compiled program to eliminate this window.

In the resource fork of the program, search for the hexidecimal string "00 29 00 02 01 54 01 FC" and replace it with all zeros. Save the changes to your file and you're off.
CHUCK LAUDENBACH
HASTINGS, MI

GRAPHICWORKS



Using *ResEdit*, double-click first on the *GraphicWorks* application and then on the PAT# (pattern list) line. You can then double-click on any of the four palettes to edit any pattern.

FILE

Typing OPTION-RETURN in a field will generate a line feed at the insertion point, allowing you to create lists. This embedded character acts like a normal Return when copied and pasted into a word processing or spreadsheet application.

In addition, SHIFT-CLICK will select the entire field, thus avoiding having to scroll.
CHUCK LAUDENBACH
HASTINGS, MI

MICROSOFT FORTRAN

The TYPE statement is an easy way to output data onto the screen, but the typed output is not followed by a carriage return as it is with FORTRAN on other computers. The problem that this can lead to is information from each subsequent TYPE statement appears on the same line and runs off the screen. To have each TYPE statement display information on a new line, have your code type the ASCII characters for a carriage return and a line feed at the end of each TYPE statement. To do this include the following statements at the beginning of your program:

CHARACTER*1 CR, LF
PARAMETER (CR=13, LF=10)

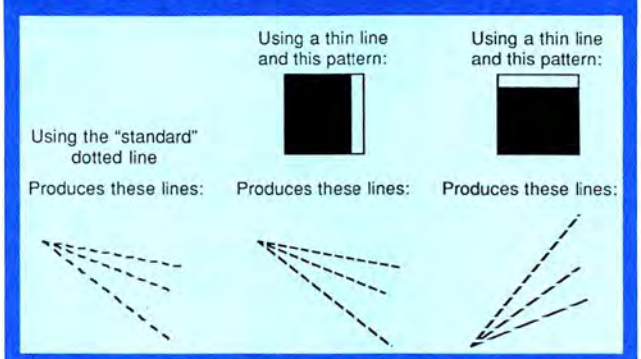
Once these statements are included, all TYPE statements should include the variables CR and LF at the end of each parameter list. For example:

TYPE *,'This is the FIRST line',CR,LF

TYPE *,'While this is the SECOND',CR,LF

Other ASCII characters, such as the system bell (ASCII 7), may be added to TYPE statements in the same fashion.
JEFFREY LINDSAY
APPLETON, WI

MACDRAFT



Since the dotted lines in *MacDraft* look very poor, create a pattern as shown and use a thin line with that pattern as the line pattern to produce clearer dotted lines.

FIND FILE DA

The new version 1.1 of the Find File desk accessory, part of the *System* 4.1/*Finder* 5.5 update, has an option, MOVE TO DESKTOP, on its menu. Remember after using this Find File option at the *Finder* to use the *Finder*'s Put Away command.

After using Find File to locate a file, choose MOVE TO DESKTOP from the Find File menu and the file will appear on the desktop, next to the disk icons. Later, select the file and choose PUT AWAY from the File menu and you will see the file shoot back to

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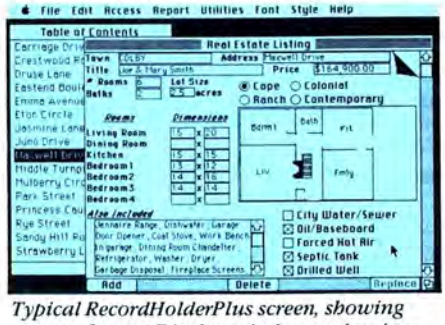

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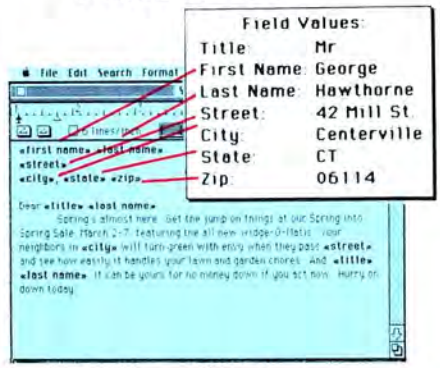
At last. Mail merge for MacWrite.™



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its original disk/folder. If you are using *AppleShare,* the MOVE TO DESKTOP option will be disabled.
CHARLENE WETFRIT
DALLAS, TX

PARAMETER MANAGER

If you are entering a formula into the calculated parameter dialog box and you need to use the same formula in another calculated parameter, you can select the formula and use the Cut and Copy commands by their usual keyboard equivalents, COMMAND-X and COMMAND-C. You then can use the Next or Previous buttons to advance to the desired parameter and use COMMAND-V to paste in the cut or copied formula. Since the menu bar is not accessible while the calculated parameter dialog box is open, the only way to edit these items is to use the keyboard equivalents.
WILLIAM E. ADAMS
SOUTH HAVEN, MI

EXCEL

It is annoying to reopen a number of linked documents and be constantly presented with the "Update Reference to Non-Resident Sheets" message. Clicking on either choice will update the worksheet or chart automatically, and that can take some time. One solution to this problem is to use the Resume Excel documents. (A Resume Excel document is created each time you choose QUIT from *Excel.* It contains information on what documents were open and where they were placed right before you quit.)

Before starting, remember what documents reference others, including worksheets, macro sheets and charts. Remember to include all linked files. Enter *Excel* and open the related documents. Activate, either by clicking or using the Windows menu, all documents in the following order. First activate all the charts, then all worksheets and finally, if you have any, all macro sheets. Now choose QUIT from the File menu.

After *Excel* returns you to the *Finder,* in the same folder (or disk) as *Excel,* you will find a Resume Excel document. Rename that document, so the next time you quit *Excel* it doesn't get replaced. Next time you want to open your linked documents, simply double-click the renamed Resume document.
CHARYTON DOHERTY ASSOC.
WEST CHESTER, PA

PAGEMAKER

WELCOME TO SAN MATEO, CA!

In order to better accommodate your move, we've created this short questionnaire sheet. Please take one moment to fill it out. Thank you in advance for your cooperation.
— Robert Webster, Director of Relocation Services

Name _____
Former Address _____
City, St, Zip _____

New Address _____
City, St, Zip _____
New Phone Number _____
Date of Move _____

Social Security No. _____

WELCOME TO SAN MATEO, CA!

In order to better accommodate your move, we've created this short questionnaire sheet. Please take one moment to fill it out. Thank you in advance for your cooperation.
— Robert Webster, Director of Relocation Services

Name _____
Former Address _____
City, St, Zip _____

New Address _____
City, St, Zip _____
New Phone Number _____
Date of Move _____

Social Security No. _____

When creating a "fill-in" sheet within *PageMaker,* often the ends of all the lines will not match up. Simply create a white box, with no line weight and draw it over the end of the lines to match them up. Shown is the same document, one with the lines collated and one without.

PAGEMAKER

When making a "fill-in" sheet with *PageMaker,* the underscore characters you type at the end of each line will very rarely line up with the end of the other lines. A simple solution to correcting this problem is, after you have completed the page, draw a box over the edges of the ends of the lines, encompassing all the associated lines. Give that box a "White" shade and "None" lines, so it cannot be viewed. However, it will cover objects behind it.
STEVE KENNEDY
ORANGE, CA

When working with a number of objects confined in a small space, it is often hard to select the exact object you want to manipulate. Version 2.0 of *PageMaker* allows you to "flip" through closely packed objects by Command-clicking near an object.
LUKA B. JON
SASKATCHEWAN, CA

Because *PageMaker* 2.0 places all nonprinting guides "over the top" of a document, it can be frustrating to try and select an item that is located on or under a guide without grabbing the guide. Use the GUIDE LOCK command on the Options menu. This will lock the guides temporarily so that you will not be able to select

For Your Convenience

Why do more work than you have to? Microsoft® *Works* gave you word processing, spreadsheets, and a data base. But don't you still wish you had an "automatic time-saving device" to take care of the everyday, repetitious typing?

Get the WorksPlus Commands program. With its pre-programmed commands, you can eliminate much of your repetitive typing. With the touch of a single Macintosh™ command key, you can

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- Set up multi-column labels from a data base
- Generate a table of contents or an index
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Once you see how easy it is to use, you can also use WorksPlus Commands to create your own commands. You don't need to be a programmer. Simply record the keystrokes or mouse clicks and you have an "instant" command.

Of course, if you have a programming inclination, WorksPlus Commands provides a full programming language for your convenience. Create your own complex macros to do your bidding at the touch of a key.

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...and over

...and over.

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and move them accidentally. When you are finished moving your objects, toggle the Guide Lock option by once again choosing GUIDE LOCK.
ROANNE WILCOX
WOODBURY, NY

ANCIENT ART OF WAR

Normally, you use archers alone to overrun forts. Here's how to take a fort with fewer casualties. Send two or more groups (barbarians or knights) with a few men to occupy the enemies' archers. Then send in your regular units so that a fight will take place in the courtyard and not at the base of the wall of the enemy fort.
ARTHUR W. HENRICK
SANTA CLARA, CA

MACPUBLISHER III

The graphics palette on *MacPublisher III*, which is used to design custom graphics, such as borders and rules, will not function properly when using the application on the original floppy disks. The reason for this is due to unavailable free space on the master floppy. The solution to this "problem" is to only use *MacPublisher III* on a relatively clear disk, with the sample files taken off your copy.
MICHAEL LEVITZ
ALLSTON, MA

MAC SE

Using *ResEdit*, it is possible to remove a few unnecessary resources from the System file. These resources may only be removed if you are using *System* 4.1 and the Mac SE. The PTCH resources are "patches" to a particular machine's ROMs. The unnecessary PTCH resources are those numbered 28927, 105, 117 and 376, which are the patches for the ROMs of the Mac XL, Mac 512, Mac Plus and the Mac II, respectively.

In addition, now that the SANE (Apple's high-level mathematical routines) functions are found in the SE's ROM, you are able to remove them from the *System* file. The SANE resources are PACK 4 and PACK 5.

As always, only use *ResEdit* on a backup copy of your software.
JOEL PESKOFF
FOREST HILLS, NY

Since the Macintosh SE can have two built-in floppy drives and one external floppy drive, the Command-Shift keyboard commands for ejecting disks are a little different. COMMAND-SHIFT-1 will eject the bottom (internal) drive, while COMMAND-SHIFT-2 will eject the upper drive. The new Command-Shift combination for ejecting the external floppy drive is COMMAND-SHIFT-0.
JOE LIEMANDT
DALLAS, TX

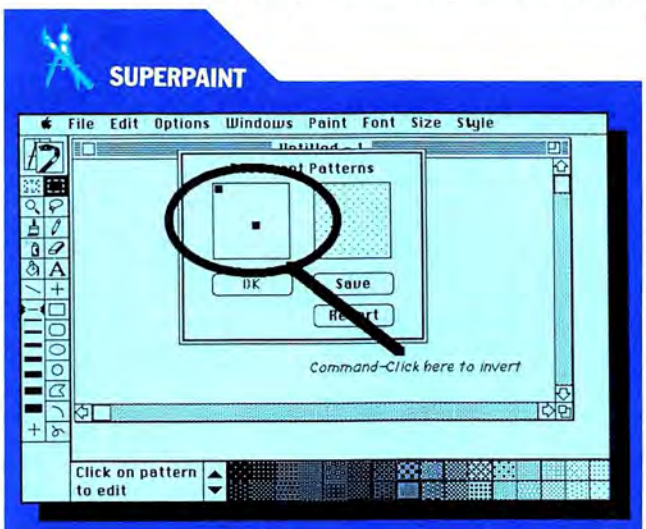
TELECOMMUNICATIONS

If you have call waiting and a modem, you can run into a lot of interrupted telecommunication sessions. A little known trick is to add "*70" just before the number to be dialed in your modem dial command. This will disable call waiting.

This tip doesn't work in all areas of the country. Ask your phone company. Sometimes they can put it in on request.
ANDY SCHAFER
CHAGRIN FALLS, OH

SUPERPAINT

When editing paint patterns or paint brush shapes, holding down the Command key while clicking the mouse anywhere in the pixel editing box will cause the pattern or brush being edited to reverse its pattern. (White will become black and black will turn white).
KATHERINE RENFRO
CHEVY CHASE, MD



Command clicking in the FatBits like area of either the brush edit or pattern edit window will invert the image.

ROUGE

When playing *Rouge* you might want to save your character so you will still have him if he dies. However, *Rouge* deletes a character from the disk each time he is opened at the beginning of a session. To avoid this, save your character and then eject the disk, using a Command-Shift combination, and lock it. Reinsert the disk and play the game. Since the disk is locked, it is not possible for the game to erase your character.
BARRY LANIER
GERMANTON, NC

INSTALLER

When you want to install more than one script onto a disk, *Installer* will not allow you to immediately Shift-Click to select multiple items. When you want to select more than one, click on the first script, wait for *Installer* to do its calculations and *then* Shift-Click on the second script. If there is room available on the drive, clicking INSTALL will install all of the scripts selected.
JIM MCSPIRITT
SAYREVILLE, NJ

Don't just sit there waiting for us to get around to your problem or question. Copies of the deluxe, spiral bound edition of *The Power User's Manual: Over 1,000 Hints and Tips for the Macintosh* are now available for a mere $19.95, which includes shipping and handling. The manual has two cross-referenced indexes to help find tips fast and covers over 100 of the most popular Mac programs and peripherals. It's worth its weight in gold mice. Make your checks payable to Power User's Manual and send the order to: Power User's Manual Offer, 831 Federal Road, Brookfield, CT 06804. Bulk rates for clubs, organizations and schools are available from the same address.

MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the* MacUser *editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). CP? indicates that we don't know. If a product has been reviewed or QuickClicked in* MacUser*, the date of the review is shown. Next time you have to find products you can count on, count on* MacUser*!

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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features ♦♦♦♦ versatile charting and data base capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. Paladin, 2895 Zanker Rd., San Jose, CA 95134. CP (Jan 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has ♦♦♦♦♦ 256-column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Prem)

Jazz provides well integrated modules for word processing, graphs, ♦♦♦♦ worksheets, data bases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word ♦♦♦♦½ processing, data base, spreadsheet and telecommunications functions. The telecommunications module includes background up- and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86)

Quartet is an integrated program that works on a 128K Mac, built ♦♦♦♦ around a powerful spreadsheet with a full range of functions. It can also be used as a data base and provides good quality charts from spreadsheet data. Documentation is adequate, but not too well organized. $199. Haba Systems, 6711 Valjean Ave., Van Nuys, CA 91406. CP

BUSINESS ACCOUNTING

Back to Basics Accounting is a powerful double-entry accounting ♦♦♦♦ software package for the small business user with GL, AR and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy to use system. Six journals, ♦♦♦♦ AR, AP, Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disburse- ♦♦♦♦ ments, Receipts, General, Sales and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built-in, but customer and vendor information is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP

Insight is a high-powered accounting program for the small to ♦♦♦♦½ medium size business. At present, three modules are available: Accounts Receivable, Payables and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 86)

Rags to Riches integrated accounting modules (General Ledger ♦♦♦♦½ and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Version 3.0 now provides detailed, flexible report options. Very easy to use, but it can be confusing with several windows on-screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec 85)

Rags to Riches Professional Billing tracks and bills profession- ♦♦♦♦ al services. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. 512K+, printer. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined ♦♦♦♦ set-up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each; and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

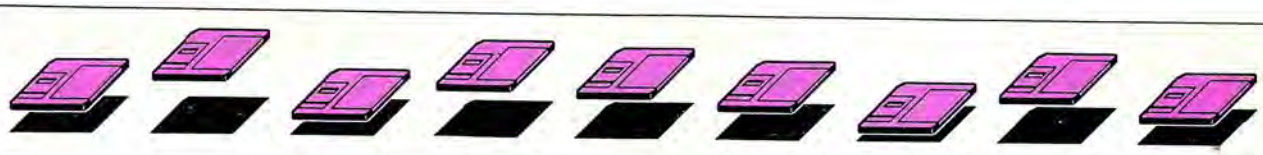
PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a ♦♦♦ good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, ♦♦♦♦♦ easy to use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $99 federal; $45 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87)

MacMoney is a complete and easy to use personal financial ♦♦♦♦½ system. Intuitive data entry. Integrates with *MacInTax*. Requires 512K+. $74.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (May 87)

Market Pro is a comprehensive portfolio management program for ♦♦♦♦ the generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)



DATA BASES

Business Filevision is a masterpiece of Macintosh programming, ★★★★ the only true graphic data base on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Telos Software, 3420 Ocean Park Blvd, Santa Monica, CA 90405. NCP (Feb 86)

Double Helix is an environment to generate custom applications ★★★★ built around a data base-type framework. Contains enhancements to *Helix* 2.0. Includes custom menus, sub form windows, password protection and a universal dump and load parser. Ability to store pictures as data fields. $495. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Oct 86)

File is a flexible data manager. Creates files for a variety of data, ★★★★ including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

FileMaker Plus retains features of *FileMaker* and reads *FileMaker* ★★★★★ data, also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. $295. Requires 512K+. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Nov 86)

Helix is a relational data base that makes extensive use of icons. ★★★★ Setup is easy due to adherence to the Mac interface. The manual is clear, thorough and well-indexed. Complicated for simple data base applications, excellent where relational power is needed. Requires 512K+ and external drive. $395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Mar 86)

MacRelax is a relational list manager that stores data in a column ★★ format. Files can be related by sharing a common field. Flexible design for reports. Screen display is sometimes strange. Easy to use but not obvious to learn. $99.95. 512K required. Arrays, 6711 Valjean Ave., Van Nuys, CA 91406. NCP (Jan 87)

Omnis 3 is a power data base, featuring concurrent multiple file ★★★★ management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. $495. Blyth, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar 86)

OverVUE is a power-packed relational data base that has extensive ★★★★½ sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85)

Professional Bibliographic System is a specialized data base ★★★★ storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

Record Holder is a flexible, easy-to-use form-oriented data ★★★ manager. Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074 NCP (Apr 86)

Reflex For The Mac is a flexible relational data base. Excellent ★★★★½ report generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 86)

Writer's Workshop maintains orderly records for writers. It can ★★★½ track manuscripts, income and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

DesignScope is a construction kit for digital and analog circuits. ★★★★ Up to 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilloscope plots output in real-time. Good for testing basic (and not-so-basic) circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

MacCalc is a fast, competent, full-featured spreadsheet with ★★★★ impressive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphic data analysis program. ★★★★ Handles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D2 Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 86)

Mindsight is a professional level decision support and business ★★★★ planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766. CP

Multiplan, the first Mac product from someone other than Apple, ★★★½ is beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated ★★★★ scheduling, statistics and graphics. It has solid spreadsheet, calendar and data base functions, and reports can be customized using other software. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. SMS, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with ★★★★★ tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast and accurate. Extremely wide range of analyses possible. Requires a minimum of 512K of RAM & 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

StatWorks is a general-purpose statistics package that is both ★★★★ powerful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. $125. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 86)

Trapeze is a powerful spreadsheet program that functions through ★★½ use of blocks. Blocks can contain the usual spreadsheet-type cells, rows or columns, text, pictures and any type of special graphics. Includes financial, conversion and transcendental functions. Early versions have exporting problems. $295. Data Tailor, 1300 S. University Dr., Fort Worth, TX 76107. NCP (Jun 87)

GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats. ★★★★½ Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. $30. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Dec 86)

Chart can easily create area, bar, column, line, pie, scatter and ★★★½ combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

ClickArt Special Effects is a *MacPaint* enhancement desk ★★★½ accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print *FullPaint*, *MacPaint*, *MacDraw* and ★★★ *MacDraft* documents in color using the ImageWriter II or

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MINIFINDERS

ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

Cricket Draw is an object-oriented drawing program that will ★★★★★ produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects are just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 87)

Cricket Graph easily generates 12 graph types. Multiple windows ★★★★★ can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter and plotter compatible. $195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86)

Easy3D is a three-dimensional, solid modeling masterpiece. Four ★★★★ variable light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EZ Draft is a high-level CAD application. Does things usually only ★★★ found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different ★★★★ items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. ★★★★½ Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles (italic, bold, etc.). $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The ★★★★½ fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include ★★★★★ full-screen drawing, multiple documents open simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. $99.95. Ann Arbor Softworks, 2393 Teller Rd., Newbury Park, CA 91320. NCP (Jun 86)

GraphicWorks 1.1 is a redesigned successor to *GraphicWorks* and ★★★★½ *ComicWorks*. Interface can be confusing to the uninitiated. Powerful bit-mapped application. $99. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Sep 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics with- ★★½ out removing them from their original documents. Indexed graphics are retrieved via the *Graphidex* DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (*Paint* format) images but the design is questionable and the execution imperfect. Requires 512K. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program ★★★ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, Inc., PO Box 86982, North Vancouver, BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and ★★★★½ powerful drawing technique. Program uses templates for precise and detailed art work. Requires 512K+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered. (Jul 87)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip ★★★★½ art. Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $79.95 each volume; $149.95 set. Enzan Hoshigumi, 310 Still River Rd., PO Box 131, Still River, MA 01467. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download ★★★★ them to their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

The Mac Art Dept. is a collection of over 150 graphic images ★★★★ ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1 Gulf & Western Plaza, New York, NY 10023. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces from ★★★½ facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K+ Mac required. $59.95. Shaherazam, PO Box 26731, Milwaukee, WI 53226. CP (Jul 86)

MacDraft is an object-oriented graphics program. It sports ad- ★★★★ vanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. $239. Innovative Data Design, 2280 Bates Ave., Ste. A, Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can ★★★★½ be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $295. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat ★★★ sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint is the graphics program that started a whole new genre. ★★★★ Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

Mac3D 2.0 is a feature-laden 3D program with a *MacDraw*-like ★★★★ interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. $249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan 87)

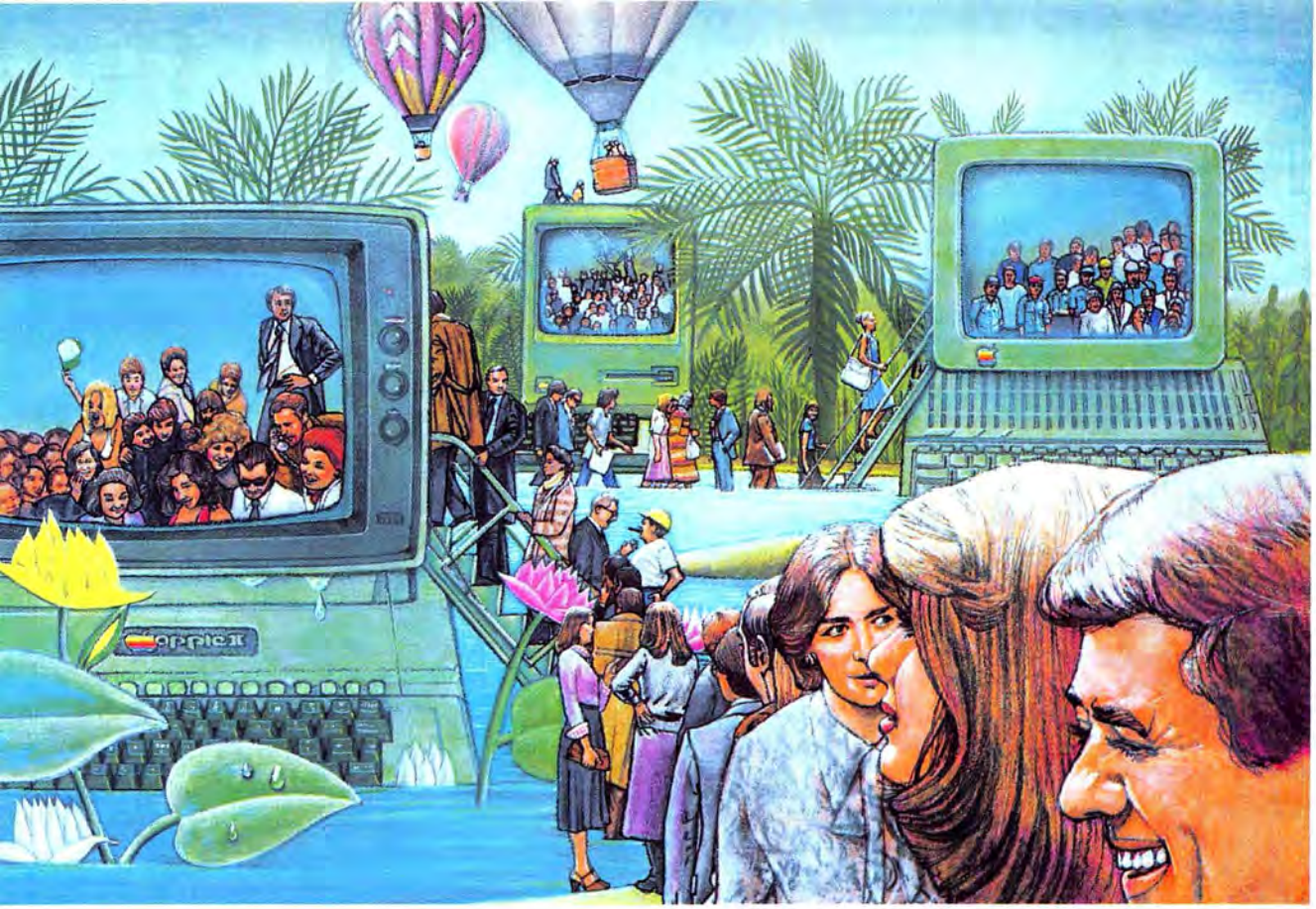
MapMaker produces maps and analyses of related geographical ★★★★½ data. Additional data disks available. Documentation could be better. Requires 512K; second drive recommended. $295. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 87)

MGMS: Professional CAD for Macintosh offers more than 200 ★★★½ functions. Very complete, capable program. Powerful tools like Groups, Dimension, Libraries, etc. are standard. Sometimes confusing to follow—designed for experienced, professional CAD user, not the novice. Full plotter support. Good tech support. Requires 512K+. $799. Micro CAD/CAM, 5910 Noble, Van Nuys, CA 91411. CP (Jun 87)

MockPackage+ is a set of extremely powerful DAs. Includes a ★★★★½ text editor, text printer (supports LaserWriter), charter, terminal and EZmenus. HFS compatible. $35. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Mar 87)

PageMaker is an advanced layout and makeup program. Can ★★★★½ easily create multiple page documents. Output is optimized for LaserWriter. Great documentation. $495. Aldus, 411 First Avenue South, Seattle, WA 98104. CP (Jun 86)

Phoenix 3D is an economical 3D drawing package, with features ★★★★ that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)



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MINIFINDERS

PictureBase 1.2 is the updated version of the powerful graphic ★★★★½ librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval $69.95. Symmetry Corp., 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87)

Portfolio: Designs for Newsletters provides over 20 templates ★★★★ for 2-page newsletters with pre-set columns, headlines, graphics and captions. Documentation provides excellent tutorial in page design. Includes DA called *Wyzzy* that optimizes screen fonts and copyfit. Requires 512K+; *PageMaker*. $79.95. Aldus Corp., 411 First Avenue South, Suite 200, Seattle, WA 98104. NCP (May 87)

The Print Shop makes it easy to create greeting cards, signs, ★★★½ banners and letterhead. Uses its own special graphics and can import *Paint* files. Hard disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Quark Xpress is a high end desktop publishing application. Layout ★★★★ is done in block format; powerful lining tool ties blocks together. Copy protection impedes usefulness. $695. Quark, 2525 W. Evans, Denver, CO 80219. CP (Sep 87)

Ragtime is an "Integrated Page Processor" with text, graphics and ★★★★ built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy to use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Apr 87)

Ready, Set, Go! 3 is the newest of the *Ready, Set, Go!* page layout ★★★ programs. Offers power word processing and excellent control for text and graphics placement. Poor LaserWriter printing time with complex pages. $395. Letraset, USA, 40 Eisenhower Dr., Paramus, NJ 07652. NCP. (Jul 87)

Slide Show Magician 1.3 is useful for creating full screen audio-★★★ visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Space Edit is a 3-D CAD program. Display shows top, front, side ★★★½ and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 512K+. $625. Abvent, 9903 Santa Monica Blvd., Suite 268, Beverly Hills, CA 90212. CP. (Jul 87)

Storyboarder produces working animated storyboards for use in ★★★★ film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SuperPaint is a powerful, easy-to-use graphics program with all ★★★★★ the best features of *MacPaint* and *MacDraw* —and then some. Among the new features, LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $99. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

WetPaint consists of two 3-disk volumes of very high quality clip ★★★★★ art. Also includes the *Art Roundup* DA, the best art browser/editor yet. Volume 1 or 2, $39 each; both Volumes, $59. Available in *PictureBase* format for $15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. ★★★★½ Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

COMMUNICATIONS

AppleShare is the long awaited file sharer from Apple. Software-★★★★ based, *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised *Finder*. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

HomePak is a package consisting of *HomeTerm*, an excellent, ★★ simple telecommunications program with strong macro features; *HomeFind*, an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit*, a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Aug 86)

inBox is an easy to use mail system. It's called up from a desk ★★★★½ accessory. Has a very slick interface. Current version requires a dedicated Mac to run as storage for the mail. $350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87)

InTalk comes with its own communications command language ★★★★½ able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample set up documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

InterMail is an electronic mail system that runs under AppleTalk. ★★★★½ Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Interactive Network Technologies, 20 Amy Circle, Waban, MA 02168. NCP (May 87)

MacTerminal provides basic telecommunications and terminal ★★½ emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation—it is superb at those. $99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy ★★★★½ enough for novices. Very powerful command language allows full automation of communications, if desired. $149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jun 86)

Partner is a telecommunications program that allows one person ★ to control their own and a remote Mac through a modem. Useful for remote technical support of an application. Numerous problems and bugs. $50. Arts & Farces, 316 S. Fourth St., Stillwater, MN 55082. NCP (Sep 87)

Red Ryder is a full-featured telecommunications program that ★★★★½ supports MacBinary, Xmodem and Kermit. Remote service procedures, auto procedure writer and keyboard macros allow automation of many operations. It is shareware and a real bargain. $40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP (Jun 86)

Smartcom II balances power and ease of use. Capable of ★★★★½ unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Prem)

Telescape is the power telecommunicator's terminal program. Can ★★★ be configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server that is designed to network computers with ★★★★½ different operating systems. The current system will support Macs, MS-DOS compatibles and UNIX. Access to files and subdirectories is transparent to the user, they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). Centram Systems West, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87)

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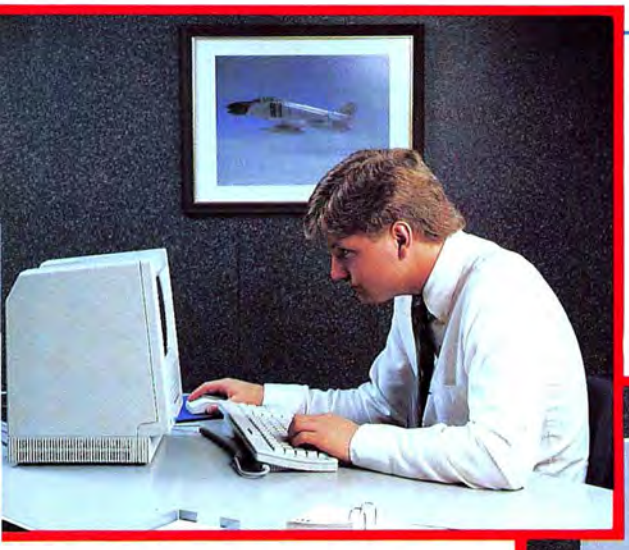

In business environments where operators spend long hours in front of their computer, the Mac's small screen size and the low physical profile can cause physical discomfort and reduced productivity. A common solution to the low profile problem was to place the computer on top of a hard drive. This is no longer a solution for the Mac SE with its internal hard disk or the Mac Plus when used with a vertical hard drive or a file server.

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MINIFINDERS

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 ★★★★½ graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several ★★★★½ special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite* ★★★ 4.5, ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. $99. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (May 86)

Document Modeler can automate much of a professional office's ★★★★½ correspondence. Comes in two parts: *Template Maker* and *Document Maker*. Initial set-up requires time and is complex. $299.95. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (Mar 87)

Doug Clapp's Word Tools is a useful punctuation and style ★★★★ editing program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that allows you to create complex ★★★★★ mathematical equations from within an application. Equation manipulation has never been easier. $79.95. Allan Bonadio Associates, 1579 Delores St., San Francisco, CA 94110. NCP (Jul 87)

Kadmos Greek Font is a full character set of ancient Greek that ★★★½ prints on any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104. NCP.

Laser Author is a high-powered, technically oriented word proces- ★★★½ sor. Good math setting capability. Has style sheets, word count and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective interactive checker. The ★★★½ dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. $59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct 86)

MacGAS is a DA spelling checker with both a small and extended ★★★ dictionary. Its best point is the excellent thesaurus, provides antonyms & glossary. A slow checker. $99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct 86)

MacLightning is an interactive spelling checker in desk accessory ★★★★½ form. Text can be checked on the fly or by selection. Works within many applications, and options include a thesaurus, medical and legal dictionary. $99.95. Target Software, 14206 Southwest 136th St., Miami, FL 33186. NCP (Oct 86)

MacProof is a grammar, style and spelling checker that's like ★★★★½ having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. $195 for standalone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr 87)

Macspell+ (version 1.10) is a spelling checker that installs as a ★★★★ desk accessory. Works easily with *MacWrite* 4.5 and 2.2 and *Word*, but has some drawbacks. New version just available. Requires 512K+, two drives or hard disk. $99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

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MacWrite is the basic Mac word processor. While it doesn't have ★★★★ every bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

MindWrite is an outliner-based word processor of considerable ★★★★ power. Besides outlining, it allows multiple documents and multiple selections. Excellent if you like to outline your writing first. $295. MindWork Software, 100 Pacific St., Monterey, CA 93940. NCP (Mar 87)

QuickWord is a word processing accessory that adds sophisticat- ★★★½ ed glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard format scripts. Starts ★★★★ with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

Spelling Champion is a fast and accurate batch-type spelling ★★★★ checker. Backup feature allows you to undo corrections. Works only with *MacWrite* 4.5. $39.95. Champion Software, 5201 South Hill Dr., Madison, WI 53705. NCP (Oct 86)

Spellswell is an effective and powerful standalone spelling ★★★★½ checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. Very good dictionary, good value. $74.95. Working Software, Inc., 321 Alvarado, Ste. H, Monterey, CA 93940. NCP (Oct 86)

Thunder! is one of the best spelling checkers around. Features ★★★★★ Learned Words (a superb glossary) and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 86)

Word 3.0 is the most feature laden word processor now available. ★★★★½ Has a spelling checker, hyphenation, some page layout, style sheets and more. Also has Microsoft's somewhat unusual view of what the Mac interface is. Requires 512K+ and 1200K+ of storage. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Mar 87)

WriteNow for the Macintosh has many of the features of ★★★★½ *MacWrite* and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has ★★★★½ practically all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. A must-have for those who do outlining. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Calliope is a new type of outlining program. Chunks of information ★★★ are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for *MacWrite* editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

DecisionMap organizes data to facilitate decision making. Unique ★★★ weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. $145. SoftStyle, 7192 Kalanianole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere ★★★★ flowcharting. Complex, detailed program aimed at software pros. $200. Meta Software, 55 Wheeler St., Cambridge, MA 02138. NCP (Apr 87)

Guide allows you to "cross reference" from within a document ★★★★½ using hypertext. You can set up words or sections of the

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document so that double-clicking brings up explanatory material, graphics and other useful items. The word processing and formatting functions, however, are limited. $135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

MacProject allows a user to plan and track a project from ♦♦♦ beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 86)

MacSpec is a specification writing tool, a cross between word and ♦♦♦ outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

Memorandum is the Mac equivalent of Post-It Notes. You can ♦♦♦♦½ attach a note to a specific area, such as a cell in a spreadsheet or a word in a word processor. Also produces timed notes. $99.95. Target Software, Inc., 14206 S.W. 136th St., Miami, FL 33186. NCP (Sep 87)

Micro Planner Plus is a great project management system. ♦♦♦♦½ Outstanding analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. Uses standard print drivers. HFS compatible. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

MORE is an incredibly powerful outline processor with gobs of ♦♦♦♦♦ great features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $295. Living Videotext, 117 Easy St., Mountain View, CA 94043. NCP (Sep 86)

PowerPoint is a comprehensive presentation creation tool. Han- ♦♦♦♦ dles 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full ♦♦♦½ keyboard control is possible. Can store and paste graphics into outlines. Slide show features allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)

Voila! is a full-featured outliner in desk accessory format. Head- ♦♦♦♦ lines can be edited like normal text. Reads and writes text files, *Word*, *MacWrite*, *ThinkTank* and *MORE* documents. Requires 512K+. Mac XL not supported. $99.95. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Mar 87)

DESK MANAGERS

BatteryPak is a set of 9 handy desk accessories including ♦♦♦♦♦ scientific and RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404 NCP (Dec 85)

Executive Office is a jack of all trades office application. Good ♦♦♦½ data base, word processing, graphics and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. $249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

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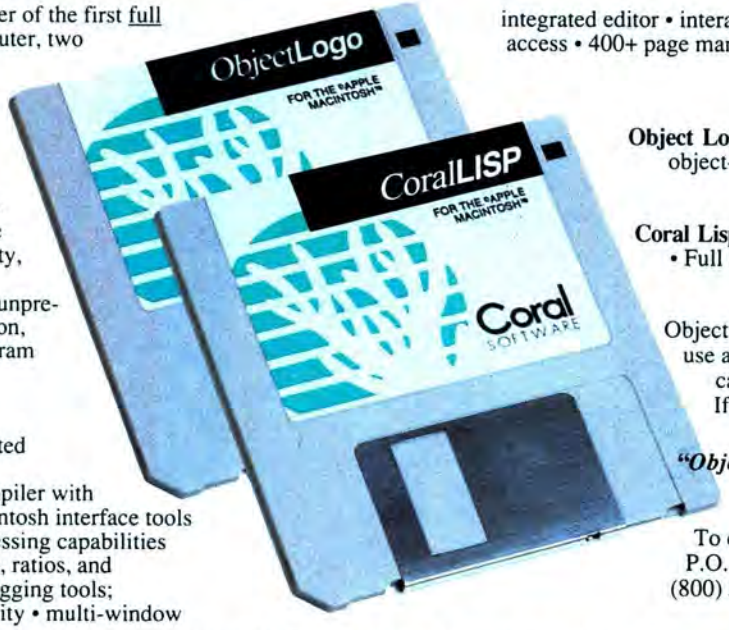

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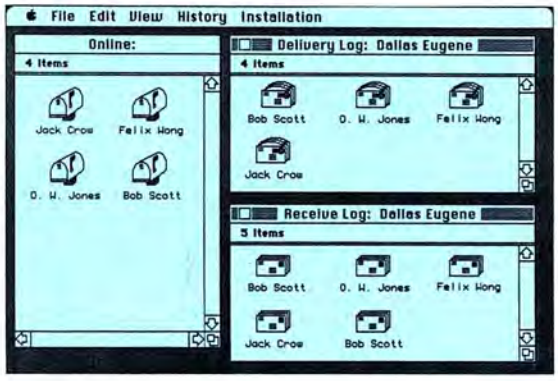


ail Center is a communication program that transfers letters, arts, and programs via the AppleTalk Personal Network™. ail Center lets you use AppleTalk to communicate directly om workstation to workstation without interrupting the rson receiving mail. No file server or hard disk is required.

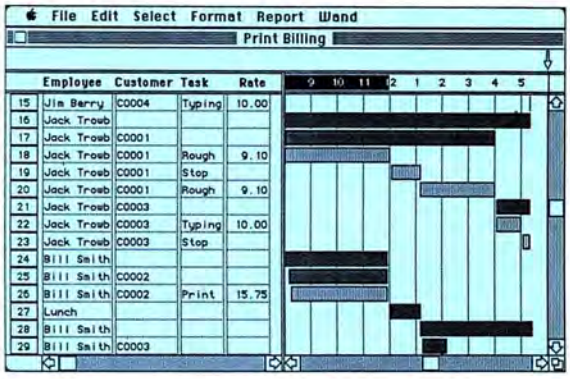
ar Code Labeler *For All Your Labeling Needs.*

ır Code Labeler allows you to design custom labels. All of Macintosh font and type styles can be used to print iling labels, bar code labels, or virtually any other type of el. Bar Code Labeler uses information from any program it saves information in a text format such as OverVue, nnis 3, and MacWrite. Bar Code Labeler will print on label ck using either the LaserWriter or ImageWriter printers.

meWand® *A Portable, Time-Stamped, Bar Code Reader.*

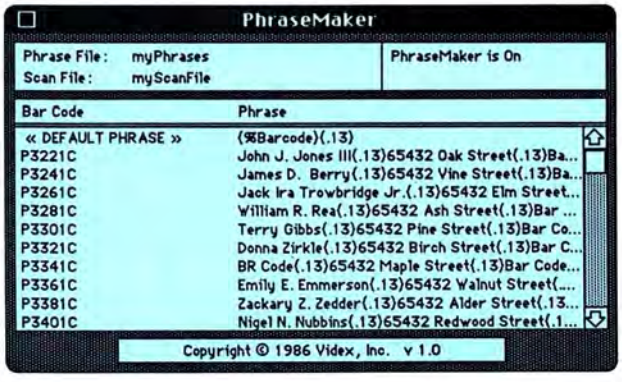
e TimeWand is an intelligent yet inexpensive bar code ding system. With its built-in micro-processor and up to K of memory, the TimeWand can be programmed to read ferent types of bar codes. Different program options can be ected, such as requiring the bar codes to be scanned in a determined order. The TimeWand's recharging/downloading tion uses a serial connector to communicate with a variety host computers. Since communication is keyless, the in information is sent quickly and error free. Versatility he hallmark of the TimeWand system.

TimeWand® Manager *A New Dimension in a Data Base.*



TimeWand Manager is a powerful software program written specifically for the TimeWand system, enabling you to easily organize your bar code information. TimeWand Manager can sort, perform calculations, display timelines, cross-reference, search, and print a variety of reports. This valuable program is ideal for both reviewing and reporting daily operations.

PhraseMaker™ *A Powerful New Software Tool.*



PhraseMaker is a unique new program that allows the TimeWand to be used with virtually any Macintosh program. Written as a desk accessory, PhraseMaker automatically cross-references bar code data received from the TimeWand with a list of stored information. Similar to a macro, PhraseMaker can enter text, menu commands, cursor movements, and bar code data directly into a program without typing.

Mail Center (Twin Pack) $299, (Six Pack) $499;
Bar Code Labeler $89; **TimeWand** (2K) $198;
TimeWand Manager $489;
PhraseMaker $299.

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MINIFINDERS

Front Desk lets small businesses and offices easily keep track of
★★★ personnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, week- and month-at-a-glance calendar. $149.95. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 85)

My Office lets you handle your files and papers in much the same
★★★★ way you did before you got a computer. Excellent use of graphic symbols. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools
★★★ used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major
★★★★ new ones—*MacPlan*, (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to
★★★★½ use, versatile and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs.
★★★★½ Menu Key adds Command key sequences to programs; View allows looking at and moving data between up to 8 *MacWrite* documents; also included are BackPrint, Touch 'n' Go, Blank, Encrypt and Launch. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint*
★★★★ *Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Nov 85)

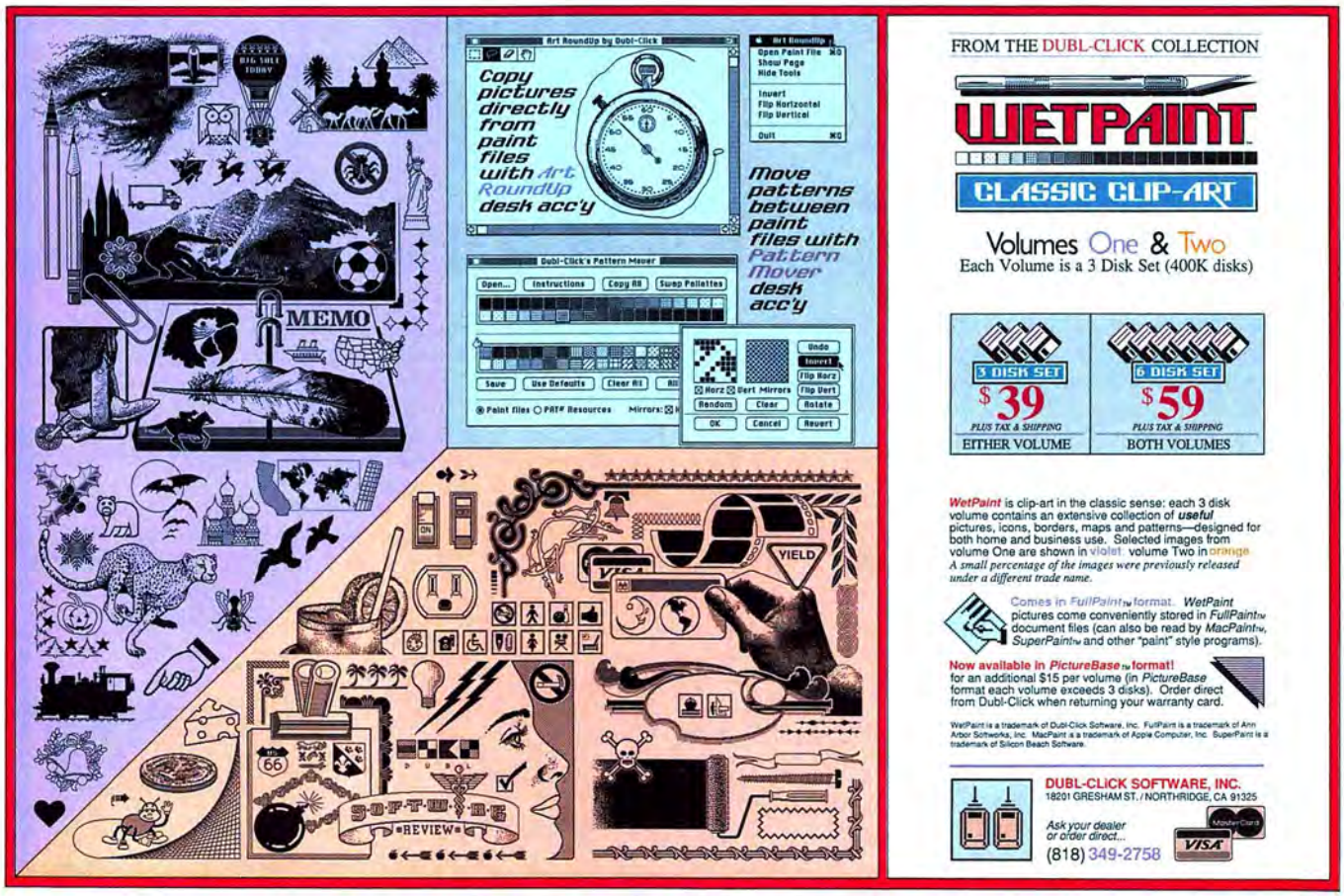
Copy II Mac does efficient sector and bit copies and in its latest
★★★★★ version can back-up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86)

DiskExpress unfragments disk volumes by reorganizing data into
★★★★ continuous sectors and arranging files to slow down further fragmentation. Works with *MacServe*, floppy drives and most hard drives. Requires 512K+. $39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files.
★★★★½ Creates a "SmartSet" of floppy disks so incremental backups only update files modified since the last backup procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

Disk Librarian is an easy to use shareware cataloguing program.
★★★★ Criteria selection option for generating subcatalogs. Requires 512K+. $20. Little Bit, 469 Edgewood Ave., New Haven, CT 06511. NCP (Apr 87)

Disk Ranger is a speedy cataloguing program that doubles as an
★★★★ efficient labelmaker. Comes with pinfeed labels. Works with hard disks. Can catalog HFS systems. $49.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Mar 86)



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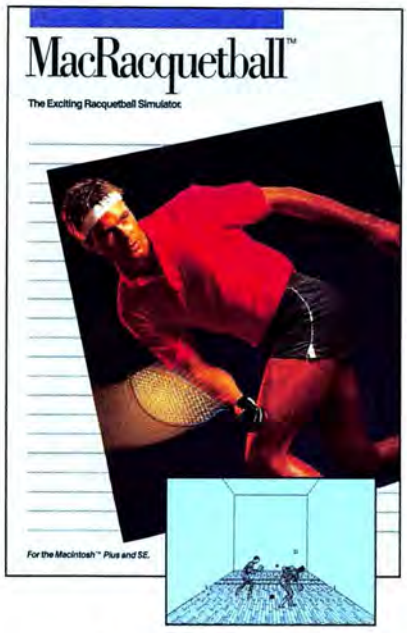
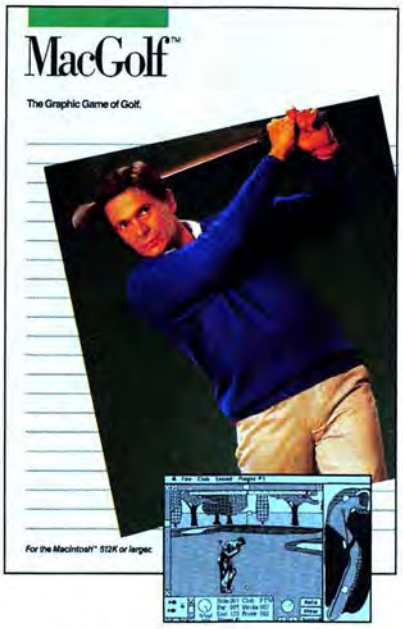


The hottest sport on a court – the hottest game a Macintosh™ can handle.

Even if you've never been on a racquetball court, you'll spark to the excitement of this challenging simulation.

MacRacquetball turns your Macintosh screen into a full perspective 3-D display of court, players and ball. With the mouse, you have complete control of player position, ball placement, ball speed and shots. Two people can play the same game over AppleTalk® or modem.

Superb graphics give MacRacquetball completely convincing realism. There are more than 1000 frames of ultra high speed digitized animation. It's one racquetball court that's always open when you're ready to play.



Enthusiastic players everywhere have made MacGolf the best selling Macintosh game ever.

MacGolf puts you in the picture, a full perspective 3-D simulation of realistic golf action. You match your skills against fairways, roughs, bunkers, water hazards, sand traps and trees.

MacGolf gives you a player's eye view of the course, in any direction, and an aerial overview of each hole. You have complete control of your position, ball placement, ball speed and direction, and selection of all 14 clubs. Digitized graphics and sounds add to the excitement.

MacGolf is so close to the real thing it will improve your golf game. And by the time you've reached the eighteenth hole you'll know you've been in a real contest.

When you have the best selling Macintosh game in the world, what do you do for an encore?

Here's new turf for adventurous MacGolfers. These are courses to conquer for mouse wielding pros who have taken the measure of the original MacGolf courses.

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If you thought MacGolf was good training for the outdoor game, MacCourses should turn you into a pro. Get MacCourses now, use it when you're ready – you never know when you'll need the challenge.

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MINIFINDERS

DiskTop 2.0 is a desk accessory *Finder* replacement of extraordi- ★★★★½ nary power and ease of use. Comes with the useful *Laser-Status* DA and *Widgets* application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, $7; $10 with new manual. $39.95. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Aug 87)

Dubl-Click Calculator Construction Set lets users design per- ★★★★½ sonalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac ★★★★★ owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. $49.95. MacMaster Systems, 939 E. El Camino Real, #122, Sunnyvale, CA 94087. NCP (Sep 86)

FlashBack is a utility to backup HFS hard disks onto floppies. A ★★★ unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* ★★★★½ installs as printer driver, *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $59.95. Solutions International, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run ★★★★½ specified programs on their hard disks. The list of patches is constantly expanding. $89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk backup ★★★★½ utilities. Backup by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can ★★★★ search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. $39.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sep 86)

LabView automates the repetitive task of controlling laboratory ★★½ instruments. Rich icon-based language allows flow chart type programming, but response is slow. Requires 512K+. $1995. National Instruments, 12109 Technology Blvd., Austin, TX 78727. NCP (Aug 87)

LaserServe is a printer spooler for AppleTalk networks. After ★★★★★ installation all operations done via a desk accessory. Works with both *MacServe* and *TOPS*. Requires 512K+ and 800K drive or hard disk. $95 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb 87)

Mac Disk Catalog II is a utility that will organize a moderate ★★★★ size disk library. Easy to use with powerful reporting and label-making features. $49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

MacFlow is a design tool created for programmers. Traditional ★★★½ flowcharting symbols are linked together, and a symbol can be connected to a separate flowchart file. Symbols can't be edited, precluding using *MacFlow* for other applications. $125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr 87)

MacInUse tracks time spent in applications and saves info as text ★★★★★ files. Installs on any disk, works in background. MFS, HFS

Disk Ranger

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and Label Maker

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MINIFINDERS

compatible. Extremely valuable for tax purposes, client records, etc. $49. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan 87)

MacLabeler lets users instantly index and print labels for all the ♦♦♦½ disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. $49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use ♦♦♦♦♦ this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. $90. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

Mac + II lets you run Apple II software on the Mac. Emulation ♦♦♦ speed is only 35 to 45 percent of a real Apple II, so graphics especially suffer. Games also run slow. Runs AppleWorks (Apple II integrated software). Good for ex-Apple II owners who have large software collections. $149.95. Meacom, PO Box 272591, Houston, TX 77277. CP

MacSafe is a data file security program that allows you to place ♦♦♦♦ multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. $149.95. Kent Marsh Limited, Inc., 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print ♦♦♦♦½ server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. $250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacZap is a three-part disk and memory utility. It can be used to ♦♦♦♦ recover some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. $60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

Menu Fonts displays the names of fonts in the acutal font instead ♦♦♦ of standard Chicago. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with *LockOut*, a utility that gives password access to your Mac, and *FastFormatter*, a utility for formatting multiple blank disks. Requires 512K+. $15. Beyond Software, 3865 N. Oracle Rd., Tucson, AZ 85705. NCP (Jul 87)

myDiskLabeler is an excellent label maker. It can read directo- ♦♦♦♦ ries, and use large or small icons or anything desired. Comes with 54 precut labels. $44.95; with color printing ability (on the ImageWriter II), $54.95; with PostScript font capability (on the LaserWriter), $64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)

'Ncryptor is a simple, safe program that lets users password their ♦♦♦♦ files. The same program is used for encoding and decoding. This is one of the best products in its category. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Packit III is an essential utility. Primarily used to temporarily ♦♦♦♦½ "glue" files together, it can also compress and encrypt. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

Printworks for the Mac is a comprehensive software-based dot- ♦♦♦♦ matrix printer control system. Optimizes printing from different applications. Requires 512K+. $75. SoftStyle, 7192 Kalanianaole Highway, Honolulu, HI 96825. NCP (Aug 87)

Programmer's On-line Companion puts an abridged version of ♦♦♦ *Inside Macintosh* in your system for reference. Simply read

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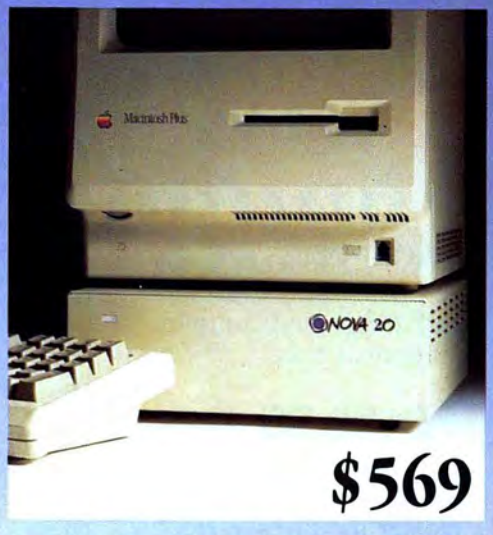

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MINIFINDERS

the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk chock full of handy ★★★★½ programs. Several desk accessories including a menu bar clock and a terminal are on the disk. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

RamSnap is a RAMdisk and disk cache in one easy to use ★★★★ package. Can store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

Stepping Out is a software virtual screen extender. Lets you ★★★★½ create a screen as large as memory allows. 9" screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Jun 87)

SmartScrap and The Clipper are two useful desk accessory ★★★★½ utilities for graphics work. *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This ★★★★★ program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

SuperLaserSpool is a LaserWriter spooler. Very fast because it ★★★★ does conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95 single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Tempo is a desk accessory that allows most Mac commands to be ★★★★ intelligently recorded and played back. Capabilities include pausing, conditional branching and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

TMON is *the* debugger for the Mac. This isn't open to question. ★★★★★ *TMON* is simply the best. Comes with the latest version of Darin Adler's Extended User Area. $100. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to ★★★★½ increase the speed of Xmodem data transfers from national data bases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and ★★★★ functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

II in a Mac is a graphically oriented Apple II emulator with unique ★★★ features, such as text and graphics copy from Apple screen to Mac Clipboard. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 1342B Route 23, Butler, NJ 07405. CP

TypeNow is a desk accessory that allows the Mac and ImageWriter ★★★★ to function as an electronic typewriter. Type can be placed

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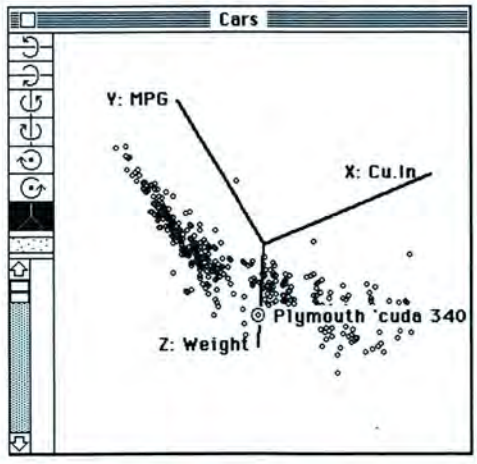

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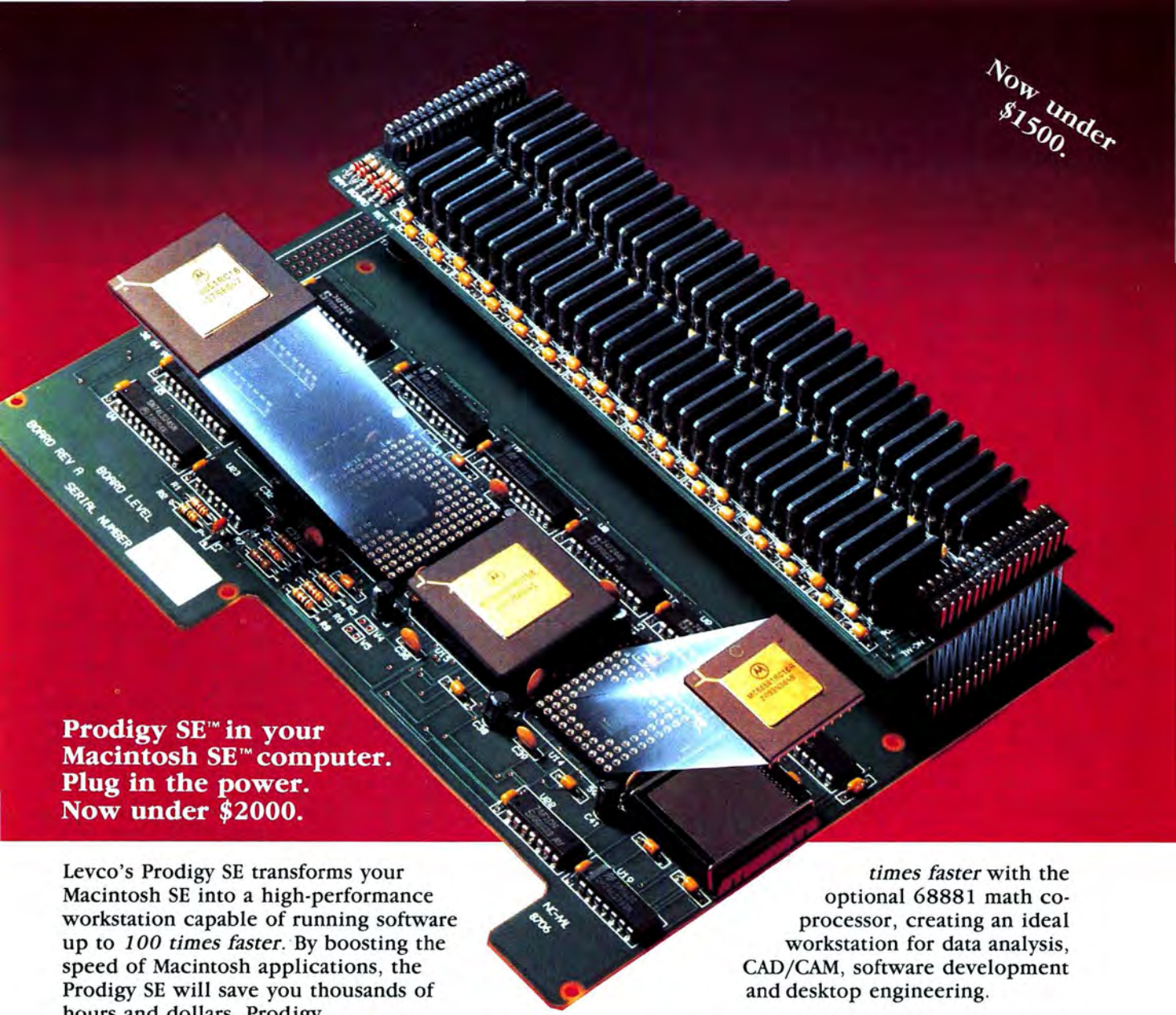

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MINIFINDERS

into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87)

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $75 beginners, $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

Basic Compiler is the long awaited compiler for *Microsoft BASIC*. The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and standalone applications. Requires 1M+. $995. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug 87)

ExperLISP is a useful, programming language for high-level programmers. The more you use it, the more you'll figure out about it. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 33108. NCP (Mar 87)

Lightspeed C provides an integrated environment for the development desk accessories, applications and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr 87)

Lightspeed Pascal is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment. Requires 512K+. $125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb 87)

LPA MacProlog is a flexible program that supports several Prolog syntaxes, producing a rich programming environment. However, the program's implementation and documentation are both poor. $295. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Mar 87)

MacAsm is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 5311B Derry Rd., Agoura Hills, CA 91301. NCP

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An Important Message To Every Mac User Who Does Not Have A Degree In Computer Programming

Let's face it; sooner or later you'll want to do something that your Mac just won't do. It's not its fault, the Mac only does what its programs allow it to do. Here's your chance to do what you want. Create your own programs!

It used to be that you had to spend hundreds of dollars and several months of study to even begin to program. You almost had to have a degree in computer programming. No more! Programming a Mac can be as easy as using one.

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The idea is to use the visual power and intelligence of the Mac to make it easy to program. You program visually and the Mac interacts with you, keeping you on the right track. Thus the name Visual Interactive Programming™ or V.I.P. for short.

V.I.P. is a totally new type of language where a graphic interface replaces a text editor. Traditionally, programming is done by typing program statements into an editor following rigid rules of a language's arcane syntax.

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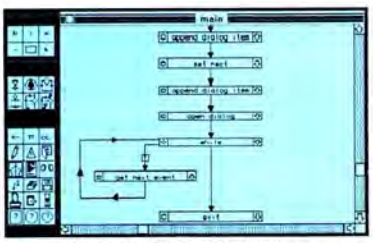
A V.I.P. program is composed of graphic elements which can be cut, copied and pasted. The program is automatically structured with classical logic forms such as *if...then...else* or loops such as *while...do* and *for...next*. These are presented graphically. **The program becomes visual!**



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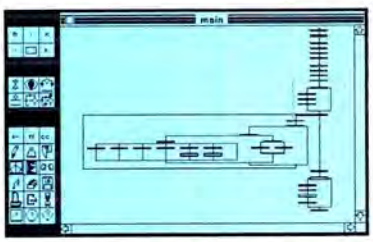

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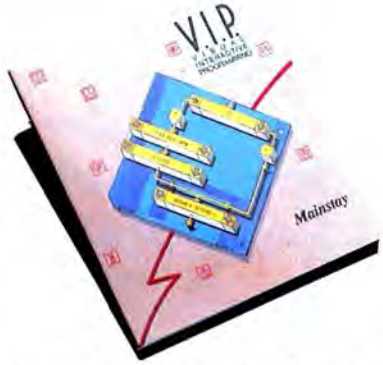

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MINIFINDERS

Mac C is a good, highly Mac-oriented implementation of this ★★★★ popular development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers ★★★ use it to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth ★★★★ programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local ★★★★ variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional ★★★★ assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Macintosh Pascal is Apple Computer's version of this very popular ★★★ programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabili- ★★★ ties. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86)

MacScheme+Toolsmith is a Mac version of Scheme, a LISP ★★★★★ dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get *Toolsmith*. Requires 1M+. $250. Semantic Microsystems, 4470 S. W. Hall, Beaverton, OR 97005. NCP (Aug 87)

Megamax C is an easy to use, full version of C. Has a compiler, ★★★★ linker, disassembler, editor and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This ★★★★ interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available to run. $99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP

MIDIBasic is a library of simple, but highly useful routines for ★★★★ writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Object Logo is an object-oriented programming language with ★★★★ access to the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

Personal Prolog is an inexpensive and well-documented program. ★★★★ Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac interface are excellent. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has ★★★★ extensive debugging facilities, but you'll need separate

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MINIFINDERS

Toolbox disk with 58 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type data base that provides fast and efficient administration of large data files in applications developed with *TML* compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, capable of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. $99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Jun 86)

TML Source Code Library shows how to write programs that use custom definition routines, speech, serial drivers, split bars and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating standalone applications that takes advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker* and *MacInTalk*. Requires 512K. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)

EDUCATION

ChipWits is a combination game and teaching tool. Players create programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

KidsTime is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct 86)

MacEdge and **MacEdge II** each contain 8 reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

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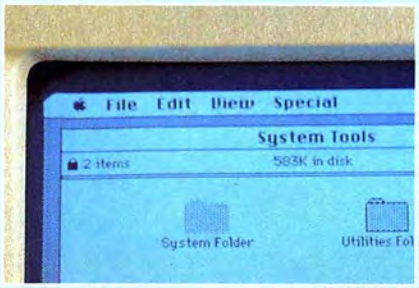

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MINIFINDERS

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. ★★★★ It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 86)

Alter Ego simulates the entire lifetime of a fictional character. The ★★★ player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jun 86)

The Ancient Art of War gives users a chance to refight some ★★★★½famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain ★★★★½control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keeps the balance of power ever-changing. One or two players. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Balance of Power is the world's first computer peacegame. This ★★★★★ simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen ★★★★ and paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

Borrowed Time casts players as detectives who have to solve their ★★★★ own murder—before it happens. This game requires players to think and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

Bridge 4.0 provides three other players and the cards for a game ★½ of rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St. Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move ★★★½ to a new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of *Hitchhiker's* fame $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will ★★★★★ appeal to both novices and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. $39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (Jul 87)

Dark Castle is an outstanding achievement in action games which ★★★★★ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Deja Vu: A Nightmare Comes True is a graphic adventure that ★★★★★ breaks new ground. Innovative use of the Mac interface in

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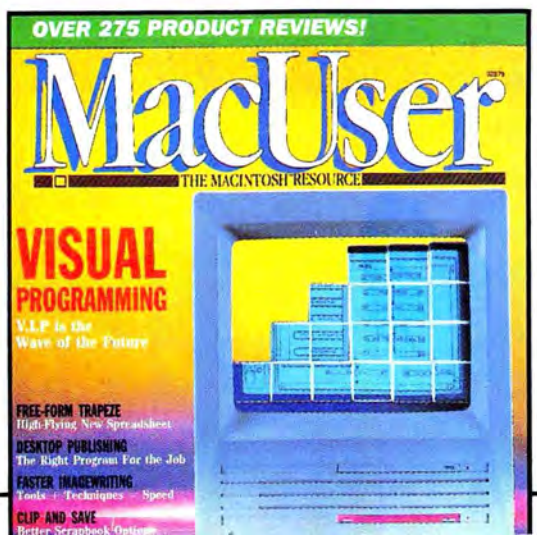

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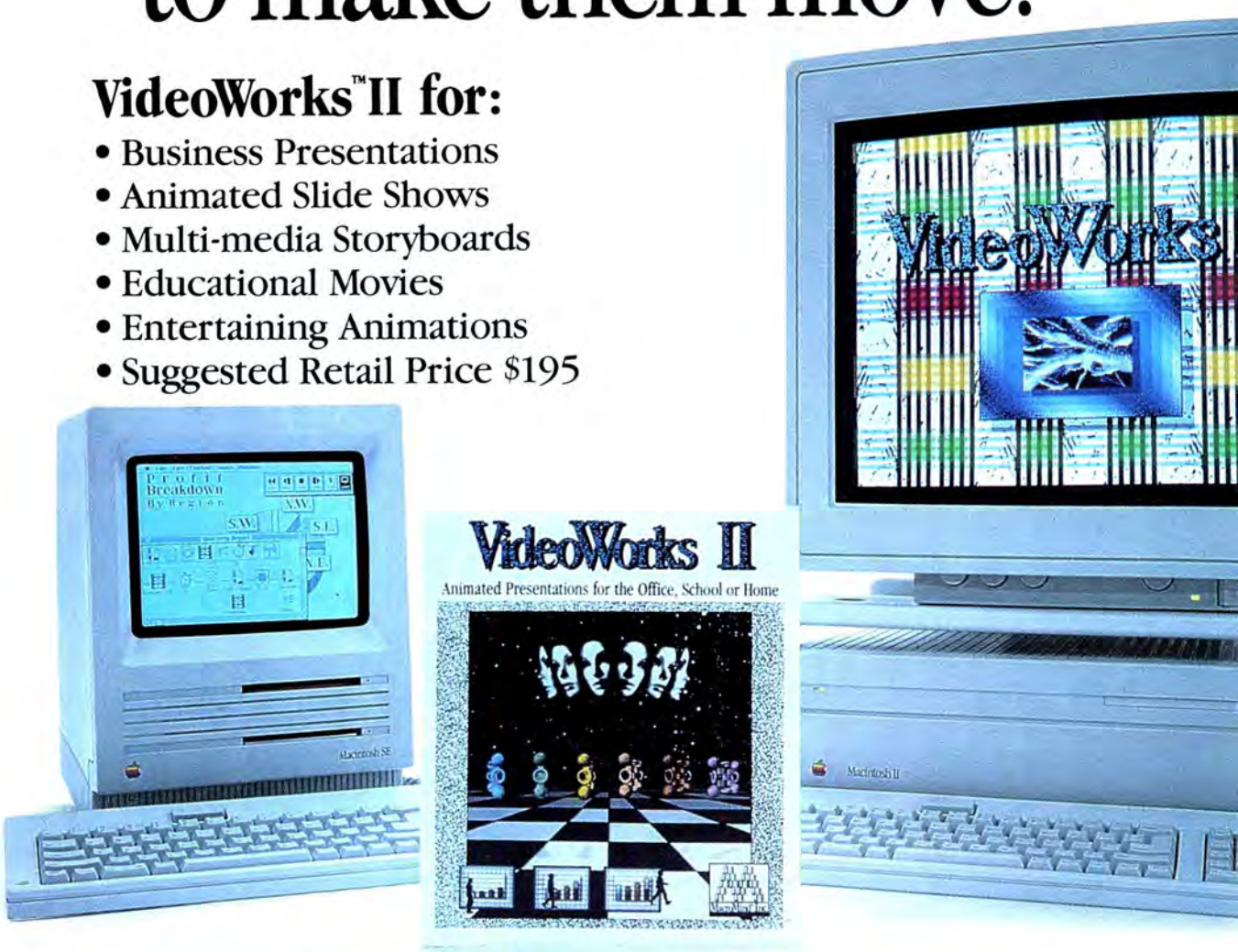

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MINIFINDERS

truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a ♦♦♦♦ collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes accordingly. $49.95. Rubicon, 2111 Dickson Dr., Austin, TX 78704. NCP (Jan 86)

Down Hill Racer is an action game with three skier personalities, ♦♦♦♦ four courses and four skill levels. There's something here for every player. Full digitized sound requires at least 1M. Requires 512K+. $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 87)

Enchanted Scepters is a surround sound graphic adventure ♦♦♦♦ game. It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Ferrari Grand Prix is an exciting race car simulation game. ♦♦♦♦ Mastering it takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

Flight Simulator puts you at the controls of a small plane (prop or ♦♦♦♦ jet) and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov 86)

Fokker Triplane is about as near to flying as you can get seated in ♦♦♦♦ front of a computer. Very realistic simulation and excellent graphics. Well designed. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World ♦♦♦♦½ War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game. ♦♦♦♦ Practice or play tournament against Mac-controlled players with different styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

HardBall is a baseball simulation game complete with umpire's ♦♦♦♦ calls and crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the ♦♦♦♦ famous Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good, "finely wrought and goodhearted game." $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Jun 87)

Leather Goddesses of Phobos is another in the long line of witty ♦♦♦♦♦ and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3D comic and a scratch 'n' sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. Move ♦♦♦♦ around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

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MINIFINDERS

MacCourses adds four very challenging new courses to *MacGolf*. ★★★½ Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf*. $34.95. Practical Computer Applications, 1305 Jefferson Hwy, Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a ★★★★½ choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May 86)

MacMan is a two-part package. The software portion is a decent ★★★★★ *PacMan*-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 934401. CP (Aug 87)

Mac Pro Football is a terrific sports simulation that gives you the ★★★★ chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

Make Millions is a fascinating business simulation in which the ★★★★★ player competes against the computer to take control of five companies, then run them profitably. Appeals to the closet capitalist in all of us. $49.95. Scarborough Systems/Mindscape, 3444 Dundee, Northbrook, IL 60062. CP

Maze Survival challenges players to destroy maze walls before ★★½ roving bugs squash themselves against it. Bugs lay eggs to spawn a new generation. $34.95. Oluvai Software, 830 NE Pop Tilton's Pl., Jensen Beach, FL 33457. NCP (Aug 87)

MazeWars+ is an interactive, multiplayer game to be played on ★★★★ AppleTalk or through a modem link. Chase opponents through a four level maze. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

Mind Over Mac features five games. Entertainment for the whole ★★★★ family. Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

MoonMist is Infocom's latest introductory level text adventure ★★★ game. This is a typical haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $39.95. Infocom, 125 Cambridge-Park Dr., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even ★★★★ good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional ★★★½ football. Comes on two disks, one with program and system, the other statistical data. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of ★★★★½ controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-★★★½ average puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

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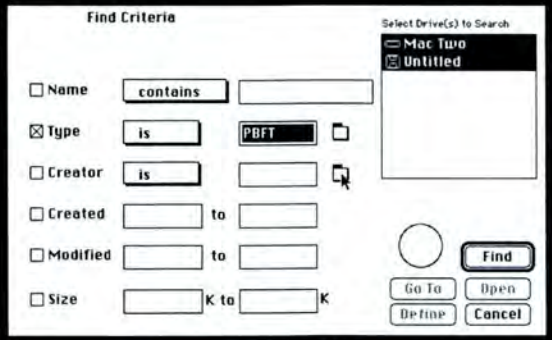

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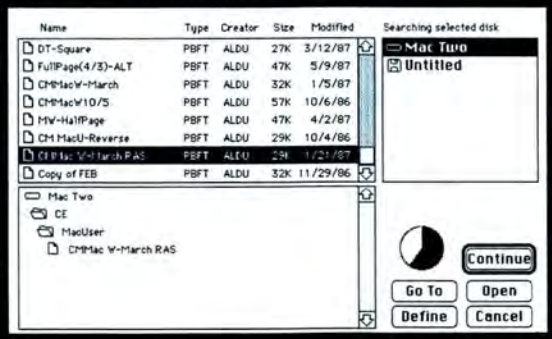

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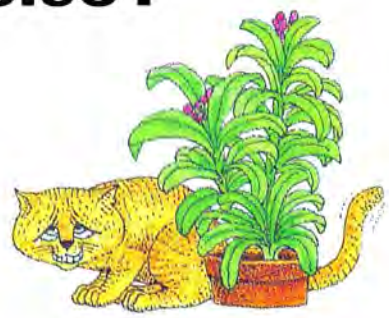

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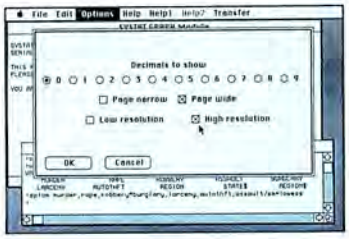

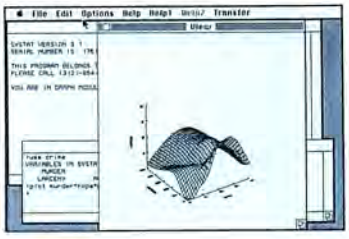

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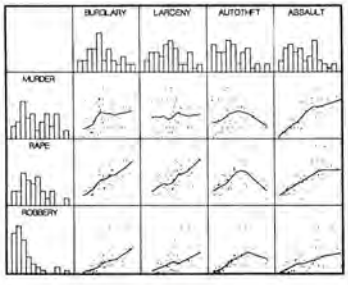

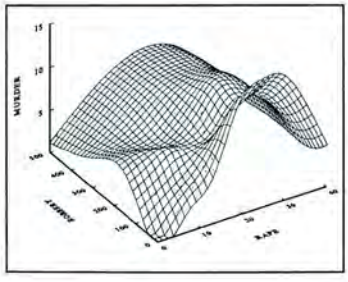

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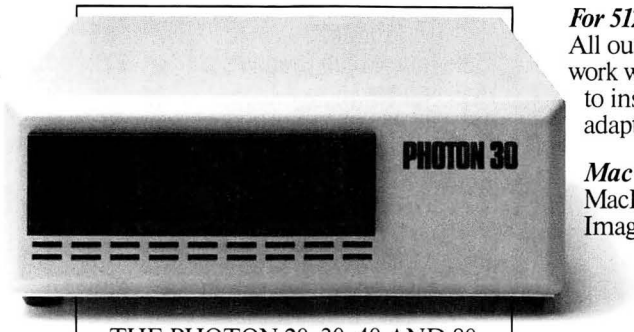

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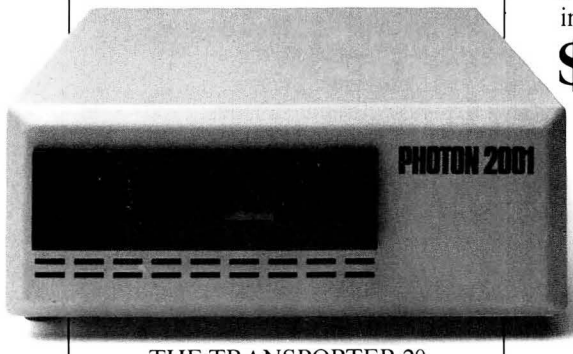

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Patton vs. Rommel is traditional-style strategic wargame. It ★★★★ covers events in Normandy in 1944. While complex, it's well designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with ★★★½ text and graphics. The unique interface has some drawbacks, but *The Pawn* has humor, social satire, is entertaining and is challenging. $44.95. Requires a Mac+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

Pinball Construction Set lets users create their own pinball ★★★★ games, as elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 86)

Puppy Love is a combined game and teaching tool. As you teach ★★★★½ your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

Real Poker is five-card draw against five other players with Old ★★★★½ West names, distinct personalities and playing styles, in a saloon setting. Dealing and play are very fast. Game evaluates your hand. $39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Seven Cities of Gold is an educational program masquerading as ★★★★ an adventure game; and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed missions and collect gold. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 87)

Shadowgate is an icon-based graphic adventure. You, as the seed ★★★★★ of prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound and adventure. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Sep 87)

Shanghai challenges players to clear a board of all 144 tiles, by ★★★★★ matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 86)

Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, ★★★ planes and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Smash Hit Racquetball is an accurate and entertaining simula- ★★★★½ tion of a day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Space Quest is a three-dimensional, animated adventure in which ★★★★ you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. Sierra On-Line, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Strategic Conquest is large scale, strategic conflict on the Mac. ★★★★ This very involved war game will be enjoyed by those who like this genre. $59.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. CP (Dec 85)

Tass Times in Tone Town is a slightly off-the-wall graphic ★★★½ adventure in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with

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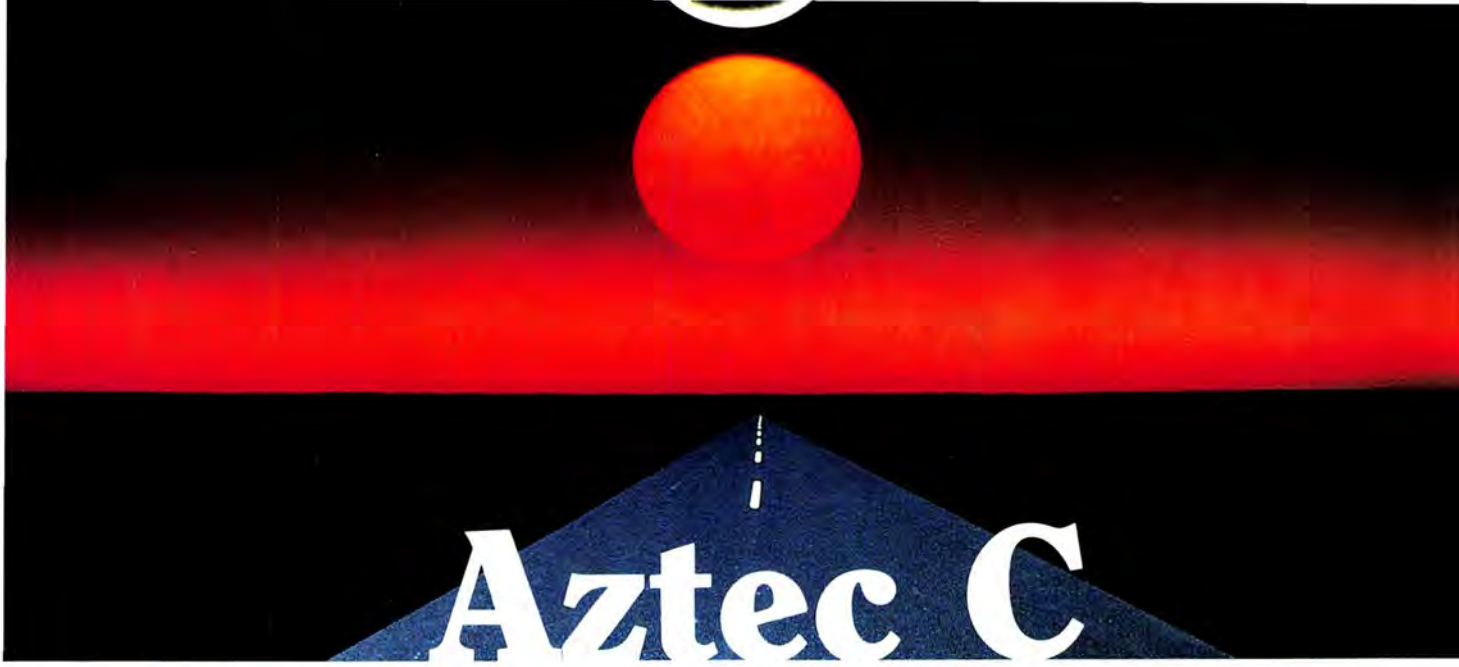

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guitar picks. Decent puzzles, with a sense of humor. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working model toys. Manual gives clear instructions, but many toys are too complex for a child to build. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Ultima III allows up to four characters to cooperate to explore the vast wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely haunted mansion. Since you access the parser by double-clicking, command choices are always visible—you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86)

Winter Games lets up to eight players compete against each other in Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr., PO Box 8020, Redwood City, CA 94063. CP (Mar 86)

Wizardry is an outstanding dungeon exploration adventure pitting a party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, 6 Main St., Ogdensburg, NY 13669. CP

WordPlay is a word game with over 50 crossword puzzles for different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what amounts to its own programming language. The whole program (language including) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach Software, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Xyphus is a role-playing game pitting four characters (fighters or wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards. Complete with four cards and envelopes. Does not run when connected to a LaserWriter. Requires 512K+. $9.95. Door Openers, 775 Greg St., Sparks, NV 89431. NCP (Jun 87)

Zork II is where the adventure continues in the underground empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

Zork III is the final chapter in the trilogy. Players come up against the ultimate enemy—the Dungeonmaster himself. More closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

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ConcertWare+ is an enhanced version of *ConcertWare*. Has different instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 85)

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notes, and offers a wide range of exercises. It also produces some beautiful sounds. $69. Imaja, PO Box 638, Middletown, CT 06457. CP (Jan 87)

MIDIBasic is a simple, but highly useful routine for writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," *Music Mouse* gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. $59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer is a strong contender for the high-end of the MIDI sequencer market. Only those experienced with MIDI should get this. Files can be transported to *Professional Composer* for editing. No direct track or segment looping. $295. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

Professional Composer is aimed at music professionals. Produces performance-quality sheet music; has only limited playback facilities. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Prem)

Studio Session consists of two programs, an Editor and a Player, that produce music with six voices of digitized sound. Excellent program plus good manual. $89.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430. CP (Dec 86)

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CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk with a unity interleave and average access time of 18 msec. Holds 140 M. Help, file transfer and tape backup commands built in. *Hard Disk Partition* is a useful DA that comes with a 6 ft. SCSI cable. $2995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1 and 2M sizes. Connects to a serial port. Speeds up operations 200 to 300%. Can be used as a printer buffer. Works with all Macs. 512K, $395; 1M, $450; 2M, $545. Western Automation Laboratories, PO Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI hard drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. $1899. SuperMac Technology, 295 N. Bernardo Ave., Mountain View, CA 94043.

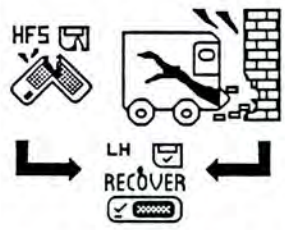
Ergotron is a Mac (and external drive) holder that allows a full range of swiveling and tilting. Very strong, this well made unit is also very easy to use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55417.

FX-20 is a good 20-meg external hard drive. Good utility software. Reliable, and reasonably quiet. Sits next to Mac. Requires SCSI port, 512K+, new ROM. $1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly noisy unit. Good utility software, but no backup yet. Requires cable and terminator ($80). Requires SCSI port, 512K+, new ROM. $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

MacBottom HD21 is a very low (about 2 inches high), external 20-meg hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including *HFS Backup*. Requires SCSI port, 512K+, new ROM. $1195. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. (Feb 87)

Mac Zap



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MINIFINDERS

MacCharlie's components slip around the Mac and convert it into ★★★★ an IBM PC clone. It works well. The enlarged keyboard has a few bugs but is a joy to use. $995. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

Macintizer is a graphics tablet and absolute positioning device ★★★★ that replaces the mouse. Various scales are possible. $599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacNifty Sound Digitizer turns ordinary analog sound input into ★★★★½ digital waveforms which can then be manipulated using the *SoundCap* software it comes with. Capable of truly stunning effects. Requires 512K+. $129.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430.

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The ★★★★ board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. $399. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. (Jun 87)

MacTablet is a stylus-driven graphics tablet. Users can easily ★★★★ sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. $495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacVision is a digitizer that uses an ordinary video camera for ★★★★ input. Capable of extremely fine results and special effects. Easy to use and well documented. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video ★★★★ cameras. With *LaserMagic* software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with *Magic* software, $399.95; *LaserMagic* software, $49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May 87)

Mouse Mover is a mouse pad-type surface that snaps on to the ★★★★½ bottom of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

Moustrak is a fabric covered foam mousing pad. It will increase ★★★★ the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NoLabelSystem is a plastic permanent labeling system in which ★★★★ users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac ★★★★½ Plus. Adds 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $395. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

PhoneNET is an AppleTalk-compatible network. Network can be up ★★★★★ to 3000' in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86)

ThunderScan replaces the ribbon cartridge in an ImageWriter, ★★★★ which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. $229. Thunderware, 21 Orinda Way, Orinda, CA 94563.

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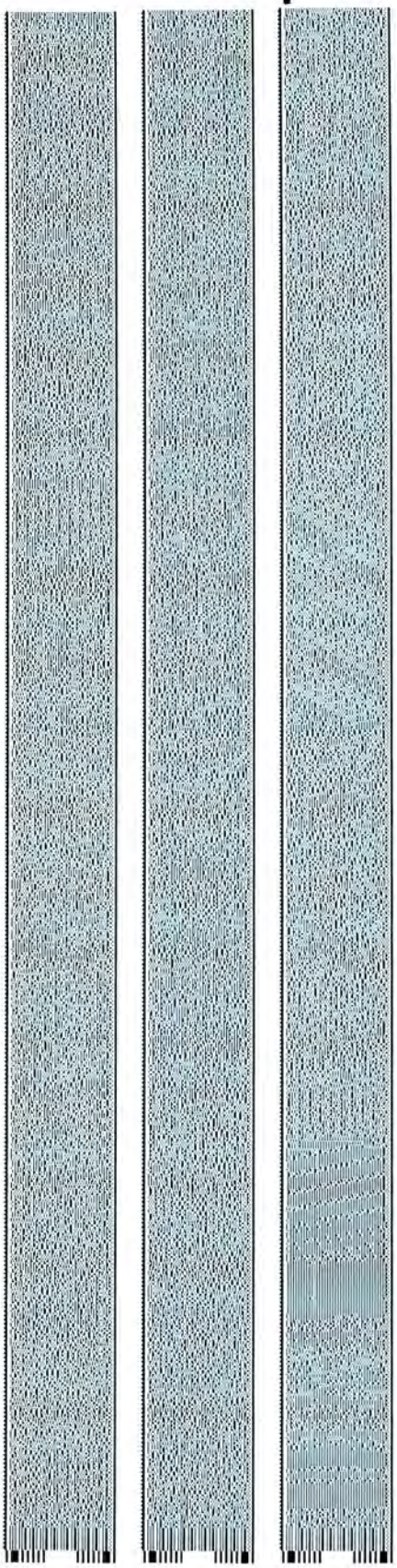

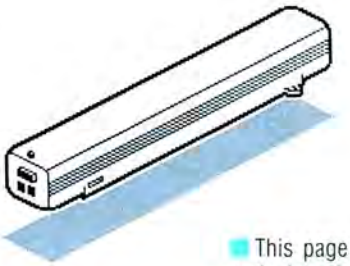

THE STRIP SHOW

This page contains Softstrips: programs and data in a special machine-readable form. The material can range from straight, unformatted data to full-blown Macintosh applications.

To use this material, you'll need a Cauzin Softstrip reader. Readers are available from your local computer dealer. Be sure to get the Macintosh accessory kit. They're easy to use, well made and simple to store. If you wish to print your own strips, you must purchase a separate, inexpensive program.

This month's strips are for an application called *HALEdit*, version 1.2. This application creates HALs which are placed in your System folder. Each HAL consists of an abbreviation of a word or phase and its expanded version.

A HAL can best be described as a "back-seat typist" that watches your typing and when it sees a HAL abbreviation it recognizes, it substitutes the replacement text. You might want to look at HALs as an unlimited glossary that works in every application.

Once a HAL is created you must place it in your System folder and then reboot for it to take effect. Remove a HAL from your System folder and reboot to deactivate it. Multiple HALs can be active at once, and one HAL has the ability to retrieve another, leading to some interesting problems if you aren't careful.

HALs have been tested on the 512, the 512 Enhanced and the Mac Plus. You must be using *System* 3.2 or higher in order for HALs to work.

HALEdit 1.2 is provided here and on various BBSs as Freeware. This means that the application and HALs created by it may be freely distributed, but may not be sold for any reason. *HALEdit* 1.2 was written by Kirk Kerekes and is provided (and copyrighted) by PaperClip Products, 1700A South Utica, Suite 301, Tulsa, OK 74114.

We will continue to publish strips containing source code from articles, but we'd like to go further. We want to know how you are using these strips, how you like the Cauzin reader, and most importantly, what you'd like to see us publish in strip format. Do you want utilities or games? Do you want standalone applications or the source code to work with. We'd love to hear from you. Write to S. Strip, c/o MacUser, 25 West 39th Street, New York, NY 10018.

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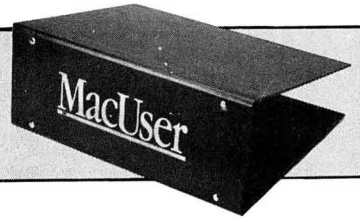

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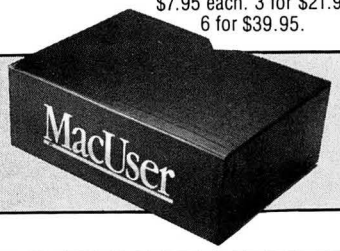

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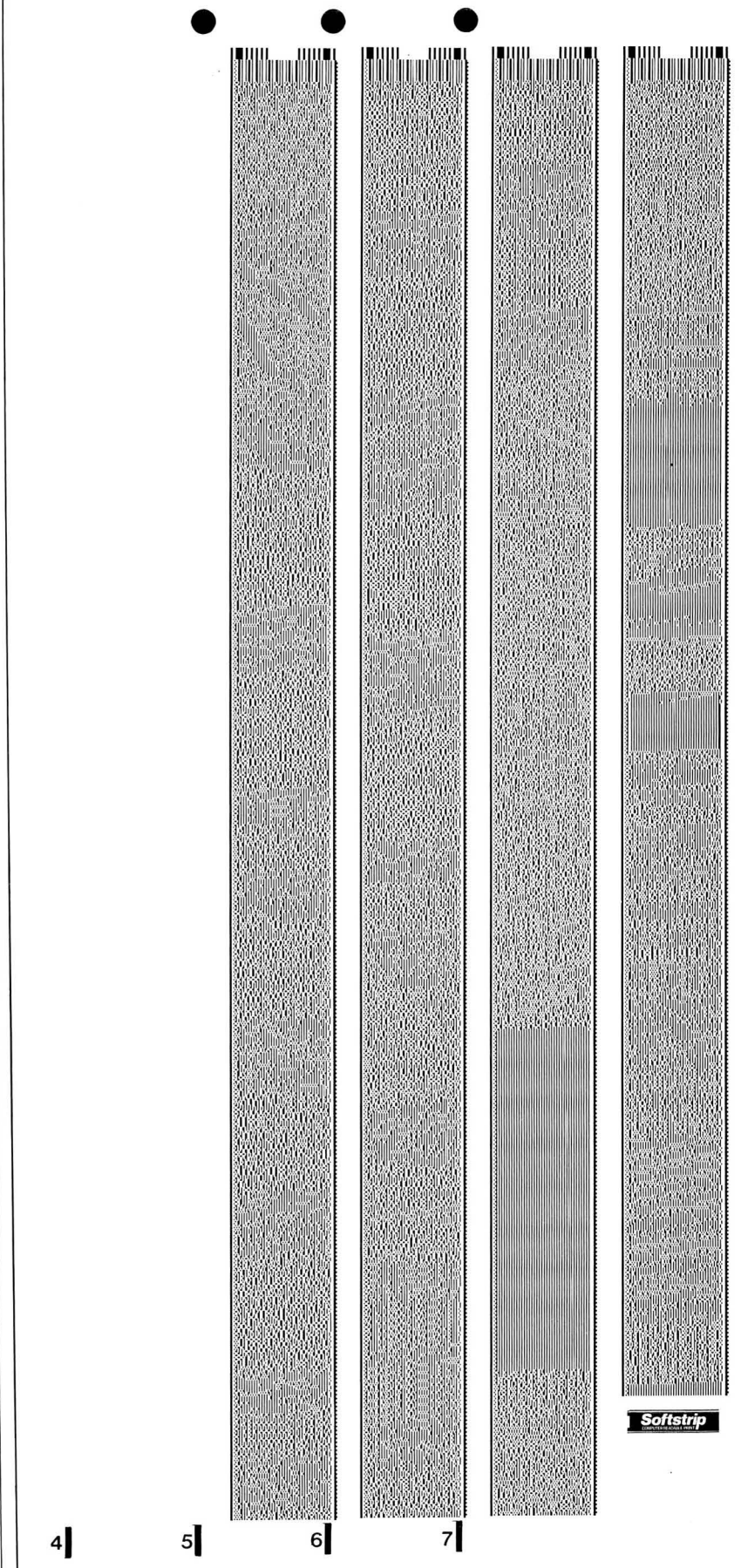

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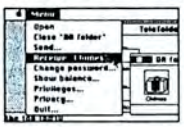

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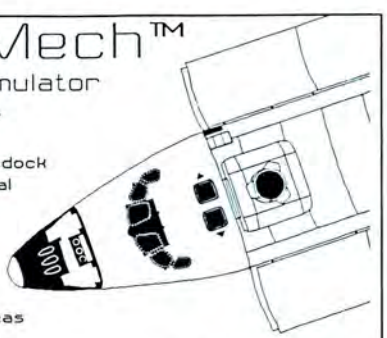

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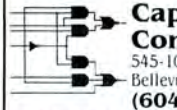

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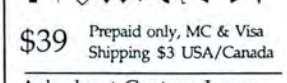

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by John C. Dvorak

Diary of a Mac User

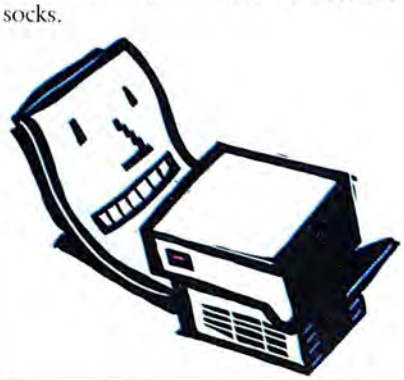
[Editor's Note: For some reason, John C. Dvorak was unable to write a column this month, and instead he sent us a few pages from a diary of his. The editors are sorry for this inconvenience.]

MAY 9. Dear Diary, Some months have passed and the effect of the IBM Personal System/2 has settled in. Have you noticed anything? A change in the weather patterns, perhaps? Dawn of a new Ice Age? Something? Anything? Neither have I. This is something I'd better write about.

This is of great interest to the Mac community. Apple sneaks through unscathed . . . again. The last time this happened was when IBM announced the PCjr. After it was shown—and masses of people collectively yawned—John Sculley admitted to me that he was a little worried at first, then surprised by the PCjr. He was surprised that Big Blue didn't deliver the expected knockout punch to the Apple II.

So what's IBM's problem? Here's a company with all the money and resources in the world and it hasn't got the guts to produce a powerful machine for the desktop market. We all suspect that IBM is trying to protect its flanks. "It doesn't want to hurt sales of its minicomputers," say the cynics. If IBM aggressively sold an inexpensive desktop machine which was powered by the 80386 chip, the sharp operators would quickly soup it up and turn it into a minicomputer engine.

MAY 10. Dear Diary, Bobker called me today. He wants a column. I just got a new SE. I finally got a LaserWriter too! I'd better get a new word processor. I'll do the column then. I need new socks.



MAY 11. Dear Diary, Did the laundry. Got on an airplane to Hawaii.

MAY 12. Dear Diary, I'm in Hawaii. Great weather as usual. I've got to make a note to write something about all these new Mac weekly magazines that are cropping up. There are two so far. Maybe I shouldn't say anything bad because I may have to work for them someday, but who are they kidding? Is there a market for a Macintosh weekly publication?

Obviously they want to cash in on the *PC Week* phenomenon. When *PC Week* came out there was ample evidence that it was needed. There were two fat monthly magazines—*PC Magazine* and *PC World* (*PC* actually coming out twice a month)—that were so thick they looked like the Manhattan phone book. We're talking 500 plus pages an issue.

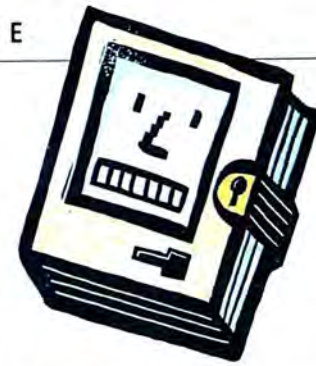
It seems to me that the success of *PC Week* was because cash-rich hardware companies needed to spend a lot for advertising. There are the big clone makers with huge multimillion dollar ad budgets and add-in card people with a similar penchant for spending. Finally came the software guys looking for a discount. Now with the Macintosh market there are NO clone makers and NO add-in card makers. (There are no cards to add-in except to a lonely slot in the SE, and how many people can afford the Mac II??)

To make matters worse, Apple has a lock on the printers sold into this market too. So it seems to me that all these weeklies are stuck with nothing but tightwad software companies as advertisers. Good luck.

MAY 13,14,15,16,17,18. Dear Diary, These pages are left intentionally blank.

MAY 19. Dear Diary, Flying back home. Can't wait to try *WriteNow* on the Mac, I just got a copy in Honolulu. Now I can do some real work.

MAY 20. Dear Diary, *WriteNow* is the word processor to use. It's great. Make a note to mention it in a column. It proves to me that the *MacUser* staff knows what it's doing. They recommended it long ago. I suppose I could go on and on about these guys, as enthusiasts are what make the magazine so superior. I don't think that other magazines or those weeklies have anyone working for them who even uses a Mac. Then again, if I say too many good things about the staff, it will go to their heads and they'll turn into conceited nerds. There's nothing worse than THAT! Make a note to say nothing about the staff. Buy dog food.



MAY 21. Dear Diary, I've got to tell the world about cache memory. If done right it increases the performance of the machine by 100%. I'll tell you, a RAM disk is a Mickey Mouse substitute for a good cache. I see on my SE control panel that Apple has wisely built in a cache. Hopefully it's done right. I'm going to put it at 512K and check the performance over the next month. I'm sick of *Switcher*. It crashes too often or unloads a program when I don't expect it to. If these machines were a little faster we wouldn't need things like this.

MAY 22. Dear Diary, I spent the day using the SE and the LaserWriter to relabel my entire collection of video tapes. I know, I know—the rent is due and I have to write a column for . . . I only have to label my collection of *The Equalizer* TV show and I'll be through.

MAY 23. Dear Diary, Got a copy of *Ready, Set, Go!* With it I can create labels on the LaserWriter that fit perfectly on an audio cassette. Bobker called. Wanted to know where the column was. I lied to him and told him I was working on it. I'll start on it after I get these cassettes finished.

MAY 24. Dear Diary, It's amazing how good a file folder looks when you put a typeset label on it. Very professional. The spice rack looks a lot better with labels too. Bobker called again. I have to make some luggage tags for some friends. The LaserWriter is perfect for this. I'll send Bobker a blank file and tell him it was a mistake. Then I can do the column tomorrow.

MAY 25. Dear Diary, I got a huge collection of the Adobe fonts. They're great. Having a lot of fun downloading and testing them.

MAY 26. Dear Diary, I have to get the column done and get away from this Mac. I haven't shaved for days. Looked over my notes for column ideas. Who cares about this stuff? The LaserWriter makes great certificates. I can't stop giving out awards.

MAY 30. Dear Diary, The house lost power today so I couldn't use the SE. I finally bathed for the first time in a week. I've got the shakes for some unknown reason. I've decided to go back to Hawaii.

MAY 31. Dear Diary, Got on a plane. Sent Bobker the diary.

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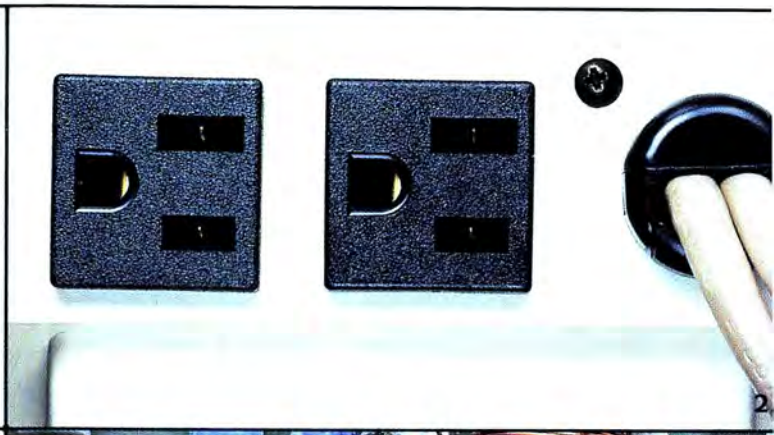

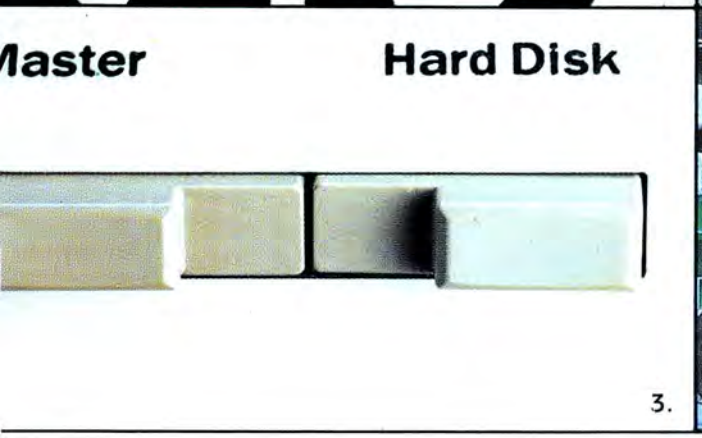

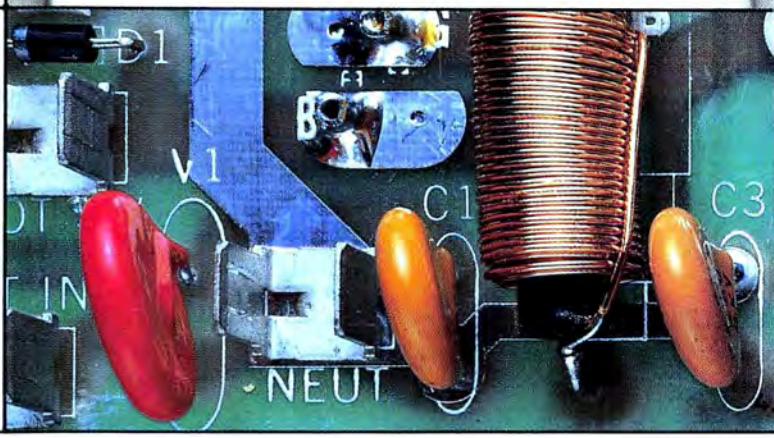

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